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INTELLECTUAL DEPENDENCY: A CRITIQUE OF THE AGRICULTURAL SCIENCE PROGRAM AT MAKERERE UNIVERSITY, UGANDA

BY

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©

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ABSTRACT

The optimism which independent governments in the South held for the role of educational systems to contribute enormously towards the transformation of their societies has seriously been questioned and contradicted by the realities of education and development. Irrelevant curricula, unemployment, rural-urban influx, crowding in the classrooms and school-based inequalities have remained as some of the most distinctive features of the educational scene today. Although misguided policies on the part of leadership has certainly contributed to this malaise and despair over the educational system, it is not a sufficient explanation since it leaves out the interplay between the underlying national and global forces which have shaped development efforts in directions that further marginalize the poor majorities. Consequently, to understand fully the educational development in South contexts, there is need to closely examine the relationships between micro realities of curriculum, pedagogy and organizational or institutional structure of educational programs and the macro realities of cultural, political and economic development. In particular, it is crucial to critically analyze the paradigmatic emphasis of specific educational programs and relate them to wider development paradigms and contexts.

This study sought to understand the theory and practice of one specific educational program at Makerere University in Uganda, namely the program responsible for the training of graduates in agricultural science. Through qualitative research methods, the study investigated the extent to which the modernization vis-a-vis the critical paradigm influences and shapes the world views of students and instructors in the agricultural science program as well as how governmental bureaucrats view the needs of the poor majorities. The data gathered through interviews and sampled documents suggest that the modernization paradigm was overwhelming in shaping the agricultural science program for rural and national development. Clearly, the program is closely structured upon the struggle to catch up with the North in terms of agricultural development and industrialization. It favors the continuation of the training based on colonial and neo-colonial ethos rather than any radical break towards meeting the basic needs of the masses. Students are also not conscientized through critical and empowering pedagogies which will prepare them to actively participate in people-centered and grassroots agricultural development. In terms of institutional and national policies on the structure of Makerere University agricultural science program the study found that the dominant expectations of curriculum, pedagogy and research held by key decision makers tended to uphold assumptions and strategies of modernization.

Furthermore, the study demonstrated evidence of North-South intellectual dependency relationships in the evolution and development of Makerere University program in agricultural science. In particular, the USAID-sponsored Manpower for Agricultural development (MFAD) is seen to promote research approaches and techniques for social validation which are fundamentally inimical to the emergence of a liberatory discourse. Issues and problems which help address the root causes of marginalization of the poor majorities and which challenge the dominance of global capital are not addressed in research output of MFAD graduates. There is also virtually no willingness or capacity of Makerere University scholars to critique mainstream views of rural and national development in ways that may jeopardize such external funding.

In sum, this study supports the conclusion that graduates of the agricultural science program at Makerere University are likely to continue to uphold policies of national development which will reproduce national and global injustices in Uganda. As technocrats well trained in the modernization paradigm, these graduate will probably not challenge the economic and political structures in the capitalist order which perpetuate inequality in order to bring about empowerment and emancipatory change. Alternatively, if the Faculty of Agriculture and Forestry at Makerere University is to serve a potentially vital role in serving the needs of sustainable and equitable development, then some major transformations will be necessary in its vision of curriculum, pedagogy, research and community linkage.

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List of Acronyms

APC	Agricultural Policy Committee
CIAT	International center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement center
CIP	International Potato Center
ICRISAT	International Crop Research Institute for Semi-Arid Tropics
CIDA	Canadian International Development Agency
CGIAR	Consultative Group in International Agricultural Research
FAO	Food and Agriculture Organization
ICRAF	International Council for Research in Agro-Forestry
IITA	International Institute for Tropical Agriculture
IDRC	International Development Research Center
IBRD	International Bank for Reconstruction and Development
ISNAR	International Service for National Agricultural Research
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MFAD	Manpower for Agricultural Development
MUARIK	Makerere University Agricultural Research Institute, Kabanyolo
NARS	National Agricultural Research System
NARO	National Agricultural Research Organization
NGO	Non-government Organization
IMF	International Monetary Fund

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CHAPTER ONE

INTRODUCTION

1. 1 Background

Uganda as a political construction under the empire is located in the interlucustrine region of East Africa (see appendices A1-3). In the same appendices are maps which show rural population density and the distribution of farming systems to shed additional light on the background. The 1991 population census put the total population at almost 17 million (16, 671,705 to be exact) for its several ethnic groups with Baganda being the most populous and deeply penetrated by external influences since colonial days. The Asians who held the monopoly of the commercial sector but who were initially brought in by the British to construct the railway line from Uganda to the coast formed a significant minority in this population mix before dictator Idi Amin decided in 1972 that they were not Ugandans and must leave. However, in the recent past following the triumph of Yoweri Museveni's National Resistance Movement (NRM), a small number has returned.

The integration of Uganda into the world economy was marked by the introduction of cash crops including coffee, tea and cotton which were needed for export by the British economic and political interests (Mamdani, 1976). The spatial configuration which resulted from the economic division of labor created a relatively impoverished north confined to the cultivation of cotton and the provision of labor for the more prosperous southern part which grew coffee and also monopolized the modern sector activities including the major administrative offices. This spatial configuration which posed enormous problems of political magnitude after independence was a necessary outcome of the political construction of the society to ensure the survival and the reproduction of capitalist relations of production in the periphery (Mamdani, 1976; Smith, 1984). Thus, as a close study of the maps referred to above may show, the economic artery of the dependent economy plus the important social services and centers were located in the southern part including the seat of government. This is an important point to bear in mind all through this work.

In order to solidify colonial occupation, it became imperative for the colonial government to establish an educational system according to the liberal logic of development but which proved to be merely a caricature of the parent system since no adaptation was made. For a long time, this educational system initially monopolized by missionaries was needed to socialize the Ugandan youth according to Western morals and ethics to later become the "modernisers" of the rest of society to replace the indigenous authorities who were demoted to chiefs and witch doctors. To fully accomplish this task, the British administration created boarding schools throughout Uganda which were characterized by rigid religious instruction and conduct as a strategy to protect the youth from the indigenous cultures based on farming. The dislike which the educated show for manual work and farming in particular, as shall be discussed in detail later is clearly located in the separate development between schools and communities with the latter being the target of missionary attack (Hansen, 1984). With the erosion of the missionary monopoly over the education system after World War I, the British administration directed its attention to the development of local technical skills to satisfy the limited demands which existed in the emergent modern sector especially in the fields of medicine, agriculture, clerical, masonry and industry. Consequently, Makerere College was set up in 1922 for those purposes, it gradually grew into a constituent college of the London University in 1948 along with Ibadan in West Africa (Southall, 1974; Ashby, 1966; Ajayi, 1971; Yefesu, 1973). Sitting at the apex of the pyramidal education system, Makerere University has remained the only significant institution of higher learning in Uganda to this day. With this background, it is useful to focus on the efforts expended by colonialists and later by independent governments to effect the social transformation of society with emphasis on the role of education in that process. Briefly stated, the state model of development which was first introduced by the colonial authorities was later enthusiastically adopted by the independent governments but met with little success in all sectors of the economy.

1. 2 Limits of the Modernization Paradigm and Development

Following independence, most governments in the South consciously embarked on the quest for rural and national development as planned change with the expressed view to overcome entrenched poverty and underdevelopment which were the result of the previous years of colonial occupation and exploitation. In each society, the pressing goal was to catch up with the former colonial rulers in terms of modernity and industrialization. Although the strategies adopted varied from one society to the next, in all cases the active involvement of international agencies in that process was paramount as sources of the necessary funding and development advice. The collaboration which ensued between the agencies and local governments in addressing and resolving the crucial issues and problems of poverty and underdevelopment has persisted to this day.

However, it is important to note right from the beginning that no single society in Africa or elsewhere in the South has realized the stated objectives. Instead, the underlying structural constraints which were selectively ignored by the developers have produced despair and restlessness leading to overt social conflict and violence in most societies.

In the general strategy for development, most societies viewed the provision of education on a massive scale not only as a panacea but also as an effective way to assist the formerly excluded majorities to overcome the social injustices inflicted on them by the colonial past. It was firmly believed by the local officials and the international agencies alike that development required a high level of literacy plus an adequate supply of people with the technical know-how to manage technology in the evolving industrial environment. This belief was bolstered by the apparent correlation between high levels of literacy and economic development discernible in the North (Schultz, 1977; Foster, 1977; Yulat, 1988). Thus, many governments did not hesitate to expand their educational establishments at all levels. In societies such as Tanzania or Zambia where there had been no university prior to independence, efforts and funds were hurriedly mobilized in compliance with the perceived logic of national development at the time. In particular, university education everywhere was viewed to be critical in the formation of labor power to fill the numerous positions left vacant by the departed colonial leaders. Also, governments and international agencies cooperated closely on matters connected with the realignment of the entire educational curriculum to serve modernization. Training in agriculture at all levels of schooling was singled out for emphasis by several development plans due to the recognition of its crucial role in sustaining domestic food needs as well as generating the badly needed foreign currency for national development.

The various development plans which were chosen and pursued by individual governments did entail a paradigmatic preference. By independence, the modernization paradigm with its roots firmly entrenched by the World War II predominated in most development plans. The logical foundations of this paradigm were officially enshrined in the Bretton Woods institutions; the World Bank and its sibling, and the International Monetary Fund (IMF) which have since become powerful players in global development. The most distinctive mark of this paradigm was its insistence that national development meant nothing else except to follow the footsteps of the North. To paraphrase, the industrialized nations of North showed the "less developed countries" the image of their own future. As elaborated by its major advocates, most notably Talcott Parsons as the high priest in America, to transform society was to witness an increase in social differentiation through the acquisition of "evolutionary universals" or value-orientations thought to be lacking still among the "backward" societies. For W. W. Rostow (1970), another unshakable proponent of the modernization paradigm, national development meant passing through five consecutive stages outlined in his *Stages of Economic Growth* which culminated in the high-mass consumption level of the present North industrialized nations. In this way, national development was perceived as equivalent to industrialization to which the South societies were accordingly urged to direct their attention.

In echoing this philosophy, educational modernisers presented studies to international bodies and local governments which argued for increased emphasis to be paid to manpower or human resource development (HRD) and planning as logical steps towards the achievement of economic development in poorer societies (Harbison & Myres, 1964; Curle, 1970). To them, the attainment of modernization could only be conceived meaningfully through deliberate policies to infuse massive sums of money to develop human resources perceived as a catalyst to growth and industrialization. Viewed in such instrumentalist terms, educational process was subordinated to the single-minded goal of achieving economic development through the provision of labor power as determined by the individual economies. In other words, the proponents of the educational paradigm in national development viewed it as having a specific purpose or role to perform in the fulfillment of the economic needs conceived and articulated within the capitalist liberal framework. Consequently, various governments especially through international agencies were pressured to expand their educational systems with this view in mind irrespective of what their historical and cultural specificities had to say about national development.

Such change defined in Eurocentric terms has not, however, yielded the progress promised to the peoples of the South. The geographically distributed inequalities within societies which were first created under the empire have increased dramatically while internal class-based inequalities have reached frightening proportions. Recurrent famine and persistent hunger have become the new lifestyle of the majorities especially among rural dwellers as well as the urbanites who were forced out of from the countryside to the squalor of the cities' slums. The condition of the rural poor has undoubtedly worsened due to the fact that the local state elite were co-opted by the international agencies to serve the priorities of the modernization paradigm. Its systematic breakdown has particularly occurred through structural adjustment programs (SAPs) administered jointly by the Bretton Woods institutions which have rendered the state "irrelevant" both as guardian of national development and a source of internal security. With corrupt, decadent and externally-supported elites at the helm of power, the masses in desperation have withdrawn to primordial associations based on parochial loyalties such as ethnicity, race and religion as significant sources of solace in troubled societies (Ihonvbere, 1994; Kothari, 1987; Wallerstein, 1993). The ruling elite themselves have used these parochial loyalties as tools to manipulate, police and sustain any dissent or oppositional discourse while entrenching the most hideous and corrupt regimes in the contemporary times in that process. Thus, the Idi Amins and Bokassas were of this kind and it should be carefully noted that these were not accidents of history or even anthropological oddities as many are led to believe by the modernization paradigm. They were reactionary functionaries specifically produced by colonial capitalism to further the Northern hegemony through the perpetuation of oppression and to forever render the masses useless and dependent. As Bello (1989) acidly notes, farmers in some societies have been reduced to eating rats while a small unproductive but powerful elite consume huge amounts of domestically-produced food as well as food imports and donations from the North. At the same time, a minority of the world's population living in the North countries consume some 70% of the world's resources.

This cumulative decay has rendered Africa most vulnerable to recolonization especially through the debt burden and the activities of transnational corporations which continually siphon colossal sums of money and resources out to the North. Furthermore, as things stand at the moment, Africa is increasingly being abandoned even as a recipient of "aid" from North countries whose attention is increasingly being redirected to the former Soviet Union and neighboring territories where returns are perceived to be higher. In brief, Africa's failure to grow economically in contrast to the growth regions of the East and Southeast Asia (e.g. the NICs or the newly industrialized countries) results in the continent being seen as an economic nuisance, a culturally and politically useless territory. Quite commonly, this decay has been attributed to modernization factors like "population explosion" or the laziness of the natives without reference to the historic exploitation which itself contributed greatly to the Northern superiority. The failure of the national development effort has undoubtedly been a result of the operation of the world economy which progressively marginalized and almost excluded the continent from the world division of labor using institutions and structures created by the North. The modernization paradigm does not take into account the role which slave trade, slavery and colonialism played to create and sustain the current asymmetrical relations at a global level. Dismissed or ignored were the ravaged colonial peoples who for centuries endured summary justice, unending economic exploitation, distortion of their social and intimate lives, and a recourseless submission to the functioning of the unchanging North supremacy (Said, 1993; Brantlinger, 1985; Austin, 1989; Bello, 1989).

To recall millions of Africans who were forcefully supplied to the slave trade is to acknowledge the fact that Northern superiority, which the "independent" societies wanted to emulate after the 1960s, was attained at an unimaginable cost. It is highly deplorable that while all white immigrants to North America can each trace their origins in European villages, black Americans can not do the same. The irony is that the proponents of the modernization paradigm continue to urge African governments to imitate the North path of development! In short, the paradigm stubbornly refuses to acknowledge the destruction of indigenous societies conducted with the sole motive to benefit North supremacy at the global level. In a similar fashion, they refuse to acknowledge the irrelevance of structures and institutions in South societies like Uganda for national development as these show no organic linkage with the traditions of the various peoples. The extent to which they continue to be embraced by the South governments is the extent to which the status quo will be maintained. Although at each point the modernization paradigm shows glaring signs of dismal failure, the international agencies and the collaborating local elite persist in the rationalization and the implementation of the same models especially through the actions of mainstream economists (Chinweizu, 1975; Gran, 1979; Amin, 1989).

An alternative approach to development ought to situate the analysis in the functioning of the global economy in order to illuminate and shed light on the historical evolution of the world economic system that we have today. A deliberate effort needs to be made to critique the modernization paradigm as well as some expressions which say that since power is everywhere, the history of underdevelopment and poverty should be laid to rest (Foucault, 1986; Lyotard, 1984). Likewise, critical theory in the tradition of Habermas (1967) is limited and limiting in its capacity to understand social conditions in the South today since in reality "modernity" still represents the assumptions and beliefs of the period of Enlightenment with all its consequences on world history. That is, any scholarship on liberatory action commits a serious error if it ignores world history as the basis for understanding our present conditions. This is precisely the major weakness of the modernization discourse on the development of non-Western societies. It accounts to a large measure for why many scholars have been compelled to rethink the theoretical foundations of this paradigm with a view to come up with a better and more comprehensive analysis of human history and development.

In brief, scholars in Latin America have been at the forefront in making exemplary contributions to the debate on development and underdevelopment (Cordoso & Faletto, 1979; Frank, 1967). As champions of the critical/dependency paradigm, they rejected the Eurocentric world view which had become firmly entrenched after World War II to define development primarily with liberal lenses. Instead, they deepened our understanding of global inequality and social injustices by bringing in the much needed structural-historical dimensions in world history in order to adequately capture the significance of slave trade, colonialism and the new but more subtle forms of domination especially as evident in the activities of transnational corporations. For them, underdevelopment is analyzed as a dialectical process in which the advancement of the "developed" North (core) was part and parcel of the underdevelopment of large parts of the globe (the peripheries) including Africa, Asia and Latin America. The scientific and technological advancement of the North is portrayed in this analysis as the logical outcome of the collective exploitation and marginalization of non-western peoples throughout the globe.

Furthermore, other scholars have enriched this mode of analysis using a special sense of historical acuity which draws evidence based on the "tributary mode" in pre-capitalist civilizations in the Mediterranean, various parts of Africa, India and China before they became "disembedded", to borrow from Polanyi (1957), to show the strengths of non-Western cultures prior to the North hegemony (Abu-Lughod, 1989; Amin, 1989; Diop, 1987). The evidence presented shows that contrary to what the proponents of the modernization paradigm believe and unfortunately prescribe for the rest of humanity in the South, cultural development cannot and should not be seen as the monopoly of any single race or people. What needs a thorough investigation is why it was possible for the North to advance to its present status and what the consequences of different processes for other societies could have been.

Also, in fine-tuning the critical paradigm, as the detailed review of literature will show, world systems analysts have emphasized the need to treat the world economic order as single unit of analysis in order to provide a comprehensive account for the hegemony of the North over the rest of the globe (Amin, 1974; Wallerstein, 1979). Looking at the developments in Africa in particular, Amin argues that the unequal expansion of the *really existing capitalism* has been destructive to local cultures and also greatly marginalized and exposed the peoples to the expansion of transnational finance capital in the last five centuries. His point is that although capital is truly transnational, it has basically favored the minority North and the local elites who have benefited from the exploitation of cheap labor and abundant natural resources in the South. Thus, these analysts point to the differential modes of production in which the South is increasingly incarcerated in the cultivation of primary commodities whose value in the world market vis-a-vis the industrially manufactured items has plummeted drastically in the last two decades. The export-led development strategies and the import substitution industrialization strategies have not only been poor strategies but have also led directly to the increased poverty and underdevelopment among the poor societies through increased costs of machinery, spare parts and other technologies from the North.

Consequently, the maldevelopment in the South has made societies extremely vulnerable to North exploitation through "aid' packages and loans to which the entire national output is sacrificed for loan repayment. In reality, the grants and loans have become mere palliatives which are simply calculated to guarantee continued dependence and poverty. Hence, the "humanitarian" gestures from the agencies and North governments can not simply be accepted at face value since they are not counterbalanced by the suffering inflicted on the South through several years of exploitation and which indeed, has actually meant nothing but the entrenchment of institutions and structures of the capitalist order which perpetuate the status quo. As I mentioned a moment ago, the status quo has benefited what Gunder Frank (1967) calls *comprador* elite in the South who have been destined to play the role of "the intermediary" in Frantz Fanon's (1963) terms. As indicated in the preceding pages, the efforts made at independence to reverse the status quo through effective curriculum change at all levels of education with a view to produce persons whose hearts and minds are situated in the peripheries has failed dismally almost everywhere in the South.

Hence, the educational institutions have persisted in churning out millions who are socialized according to the ideas of the Enlightenment to view themselves as the "modernisers" of the new societies without having the skills and relevant attitudes to do so. Since national educational systems worldwide continue to be viewed to play crucial roles in national development, it would be useful to conduct research on the pragmatic "whats, whys and hows" of such roles in the South societies like Uganda. This study seeks to take a closer but more systematic look at one sector of higher education in South context, that is, agricultural higher education in Makerere University in Uganda to ascertain the impact of policies and strategies for rural and national development. However, before the delineation of the research problem in this study, some crucial aspects of the theoretical framework should be highlighted briefly.

1. 3 The Political Economy of Technical/vocational Education in the Peripheries

Drawing from the limitations of the modernization paradigm discussed above, it is important to note that from the very beginning the development of technical education in Uganda, as elsewhere in the colonized world was opposed to the needs of the masses. The main purpose for such development was never geared towards helping the intellectual needs of the masses by raising questions and issues related to the improvement of the general human condition but was directed to provide the technical support which the colonies needed. As a result, the development of science and technology was motivated by the desire to socialize technicians and other groups to emulate the wonders of the North and in that process maintain its hegemony over the rest of the globe. In Uganda, although the colonial government claimed to have exploded the monopoly which missionaries had held over the education system by taking direct responsibility for it, the influence of the missions in the socialization of the youth has persisted to this day. The millions who graduated from the schools and colleges were socialized separately to view themselves as superior to the masses who in turn needed to be "modernized" according to the experience of the North. In short, the concern of the colonial government was restricted to the provision of technical labor power for the limited opportunities in the emergent economy without any concern for the acquisition of relevant skills and attitudes to meet the needs of the masses. At the bottom of technical education as the colonial governments perceived it was the production of technicians to assist in the consolidation of the colonial economy characterized by the cultivation of export crops and extraction of minerals to meet the expanding needs of the industrialized North. Thus, from the beginning the system of higher education was dictated by needs and interests which had very little to do with the masses as the analyses shall continue to show.

Due to the absence of any organic linkage between the institutions and the traditions of the local communities, the role of the educated could hardly have been related to the fulfillment of the needs of internal development due to their socialization that was fundamentally opposed to such needs and did not therefore provide any skills or attitudes for rural work. Hence, institutions such as Makerere were built on ideologies that were not geared towards the transformation of the entire society but were specifically targeted at the production of an elite culture and the maintenance of the status quo established through colonial rule (Ajayi, 1971; Chinweizu, 1975; Alatas, 1977). The modern state that became the carrier of modern technology and capitalist production systems had therefore engineered the process of unceasing exploitation of the masses by the elite who were resolutely bent on the implementation of an alien agenda to meet the economic and political needs of the North and their own interests.

In particular, as institutions which were supposed to raise the problems of society and to assist in their resolution, they were poorly equipped to carry out that task. In particular, the institutions of higher learning lacked the scientific spirit or what Alatas (1977) called the "philosophic spirit", which was necessary for the formation of intellectual communities in their respective areas. Prior to the rise of capitalism, distinguished scholars in the 13th century like Ibn Khaldun (1967) wrote on the necessity to develop the "scientific habit" in the instructional processes for the advancement of human civilization. Writing on this issue in relation to the development of science, Jamaluddin Afghani, a Muslim reformer, points out that the absence of philosophy in the school curriculum under the Ottoman empire was a major obstacle to social transformation.

> The reason is that teaching the philosophical sciences was impossible in those schools, and because of the non-existence of philosophy, no fruit was obtained from those sciences that are like limbs. Undoubtedly, if the spirit of philosophy had been in those schools, during this period of sixty years they themselves, independent of European countries, would have striven to reform their kingdoms in accordance with science. Also, they would not send their sons each year to European countries for education, as they would not invite teachers from there to their schools. I may say that if they did not have one of those sciences whose subject is particular, undoubtedly their philosophic spirit would call for the acquisition of all sciences. (Cited in Alatas, 1977:12)

The crucial point is that an all-round transformation of any community requires the existence of a functioning intellectual community whose purpose it is to raise questions, define problems and assist in the solution of such problems especially during times of crisis as currently faced by the South societies. The development of such a community was not the wish of colonial education which instead stifled it through the destruction of various traditions upon which genuine national development could have been based. The development of such communities which colonialism could have so easily accomplished was contrary to the ideological needs of the empire. The acceptance and internalization of the Western values and ethics through the imposed educational systems was the beginning of a long process of intellectual dependence by the South institutions which hardly any independent government has addressed seriously. Consequently, science and technology which continue to be imported to the South cannot transform the entire society as the first three decades after independence have indicated vividly.

The dependence on the North for science and technology has deepened even more following independence especially through the intellectual-financial complex of foreign "aid" in the face of declining economies (Samoff, 1993). Africa, for example, has become so dependent to the extent that the process of recolonization could be said to have began in earnest as the entire continent is today reliant on the North for virtually everything including knowledge for indigenous social organization. In the field of education, virtually everything from teaching kits and methodologies are imported and are closely linked to the systems in the North designed to promote world views which reinforce the status quo characterized by global inequality. Thus, although the masses are desperately in need of revolutionary leadership, the intellectuals are basically impotent and have failed to show any originality and creativity in tackling the numerous problems which face their societies. As the Ugandan social critic and philosopher (Okot p'Bitek, 1966:208) laments in the *Song of Lawino*,

> Bile boils inside me!
> I feel like vomiting!
> For all young men
> Were finished in the forest,
> Their manhood was finished
> In the classrooms,
> Their testicles were smashed
> With large books!

At the root of this dependence is the desire by North agencies and their governments to promote modes of knowledge production, research approaches and methods of knowledge validation that ensure the perpetuation of the poverty and underdevelopment in Africa in particular. As already said, this process is activated by the willing participation of the elites themselves who were educated closely on alien ideas and philosophies that were opposed to the general improvement of the human condition except for themselves.

Thus, the continued search for role models in the parent universities in the North to maintain "academic freedom" or what is popularly known as "international standards", yields nothing but impoverishment of the masses (Alatas, 1977; Chinweizu, 1975; Mazrui, 1992; Berman, 1979; Arnove, 1983; Okot p'Bitek, 1973). Alatas in particular warns us that no significant change can occur through the imitation of the North simply because the conditions under which they have developed are radically different from what the peoples of the South face today.

> In this situation it was inevitable that the desire to imitate arose. It was thought that the West became powerful and respected because of its technology and science. Hence the drive of the newly independent states to import science and technology; they did not realize that without the entire intellectual spirit which gave birth to modern science such an importation would remain at best piecemeal and restricted. It would be imitative, expensive, and lacking in originality, merely reproductive. (49)

Consequently, the South institutions of higher learning through their failure to respond to genuine social problems affecting the masses have ended up as appendages of the North institutions. In the current wave of structural adjustment programs, the international organizations are actively involved in the training of technocrats for various sectors of the South economies to assist in the exploitation of natural resources and labor as demanded by the political and economic interests outside their own societies. The dependency which has ensued has simply meant the failure by the South to overcome intellectual underdevelopment by courageously taking informed action to resolve the important questions of the day in favor of the masses. In any field of study in the South, there are important elements of this dependency syndrome which renders them inappropriate for genuine rural and national development.

1. 4 The Barbarism of Specialization and Intellectual dependence

Central to intellectual underdevelopment is the structure of higher education based on fragmentation and specialization into discrete disciplines with little interaction between them which owe their origin to the 15th and 16th century when Britain was the "workshop of the world" (Wallerstein, 1979). This training model is informed by the needs and interests of the capitalist order geared towards the maximization of profits in the productive modern enterprise rather than any notion of human emancipation. Hence, in most professional programs, academic disciplines are demarcated into discrete units whose specialists claim sole expertise and the strategic rents arising from them that are also guarded with catholic jealousy in the name of "academic freedom". As a result, a hierarchy of disciplines has emerged in which the so-called "hard sciences" who refuse to have anything to do with the social sciences are put at the top of the ladder. It is also worthwhile noting that the tendency for the social sciences to compare with the "hard sciences" has led to the development of sophisticated quantitative models known only to the "experts" but which hardly have any effective relationship with social reality (Kuttner, 1985; Sweezy, 1972; Amin, 1993). In this way, knowledge is portrayed in neutral and objective terms whose acquisition has to be conducted along the guidelines specified by the leading figures in the different disciplines and without the masses. This obsession with quantification has also marginalized and ignored issues and problems that belong to the realm of commonsense knowledge known to those who experience the world on the daily basis.

Critical analysts have pointed out further that the fragmentation and specialization of knowledge into tiny compartments ignores the benefits to be reaped from a generalized curriculum that looks at reality in holistic terms (Ortega y Gasset, 1964; Piccone, 1987; Macedo, 1993). They point out that this curriculum arrangement is geared towards the mass production of technocrats who are required by the bureaucracies and their industries rather than the masses. Knowing only their tiny corner, the intellectuals produced through this curriculum design refuse to recognize the validity and authenticity of knowledge produced by any other means except their own. Consequently, newer programs such as women studies are either shelved or only accepted marginally. Women studies in particular has been singled out in the capitalist order for marginalization largely due to its challenges to the gender-based inequalities rooted in the system of production to which the universities are dedicated. Similarly, even within the professional programs, certain studies such as rural sociology in agriculture, for example, are often resisted and marginalized and are therefore not accorded the same status as the "hard sciences". Other fields such as engineering refuse to acknowledge any benefit that the philosophy of science could offer for the developments in their field of study.

Thus, through global networks such as professional associations, institutions and individual intellectuals in the South have been integrated to the leadership of the North in such a way that the possibility for designing programs that are specific and relevant to their unique traditions has almost been eliminated. Consequently, what are regarded as essential components of any program of study are in reality replicas or carbon copies of programs in the North institutions with little realization that their intellectual agenda and the instructional orientation they show are specific to the North context supported by public funds. International development agencies have today become the leading conduits through which the North programs of study are transmitted to the poorer societies for purposes of "capital accumulation of a world scale". In Uganda, through the active support of United States Agency of International Development (USAID), a training program known as Manpower for Agricultural Development was launched in the mid-1980s to produce agricultural scientists for the national system on the basis of the assumptions and ideas which inform and guide program development in land-grant colleges in the US. As Altbach (1972) perceptively notes, apart from this being a training model based on American experience, it is designed for middle-level scientists and at best could only be a caricature of the parent university once transplanted to the South without adaptation.

Because the programs are deliberately designed to produce specialists in particular subject areas, the instructional strategies themselves are dictated by the definition of knowledge based on the positivistic social science whose thrust is on the neutrality and objectivity of knowledge. Consequently, the instructional sites dictate asymmetrical relations of power between the learners and the instructors such that the knowledge and experiences which could have been gained by the students prior to their entry to the program of study are ignored. This is the point which Giroux (1988) makes to the effect that the organization of the curriculum based on behavioral and cognitive psychology bypasses the crucial linkage between knowledge, power and culture which alone can unravel the various dimensions of the hidden curriculum. By positioning the instructor over and above the learners as the custodian of knowledge, the result is the development of skills and attitudes geared towards conformity to the social order rather than critical inquiry. Thus, in the top-to-bottom teaching strategies which are the product of educational theory based on "positive knowledge", the products of any field of study are qualified only upon a clear demonstration of the ability to imitate and conform to the rules established by the scientific community within a given field. As I pointed out before, what those outside a particular field say about any aspect is discounted and therefore never legitimated by the social order which makes the design possible in the first place.

In the unique situation of the South societies that require originality in approaches, creativity and reflection, the "positive knowledge" approach to curriculum development poses serious questions. While in the North the intellectual community already exists and in fact, the pressing issues in higher education are related only to the problems it is facing, societies in the South are confronted with the basic problem of developing discourses that respond to socially-defined problems with a view to develop their own intellectual communities. Due to the socialization in alien educational systems which are fundamentally antagonistic to local traditions, the issues surrounding the development of scholarship that borrows carefully but responds well to its own unique history have become even more problematic given the persistent involvement of external interests in the manipulation of public consciousness to admire and imitate the progress achieved in the North. Despite all these constraints, critical analysts continue to organize and mobilize by raising questions over the relationship between educational theory and practice and to explore the possibilities for a new language of education and practice within particular cultural contexts.

1. 5 Critical Pedagogy and the Possibility of Change

The centerpiece of critical pedagogy is the importance accorded to the relationship between knowledge, power and culture. Educational objectives framed in humanistic and behavioral terms fail to take into account the issue of ends in education since attention is focused on the mastery of "positive knowledge" that is given in a particular setting. The result often is that students are not helped to see beyond these limited objectives in order to develop critical awareness of the relationship between what is learned and the larger social reality. Educational objectives which ignore the experiences of the learners but accord a high value to the technical knowledge of the instructor commits a serious error of failing to help the learners to develop the "philosophic spirit" which is the basis of the continuity of scientific inquiry. It is therefore necessary for the learners to be assisted to understand why the particular knowledge is being learned, the way it is conducted, and why a particular form of evaluation has been put in place. For example, it is important for students in the agricultural science to ask why the instructional process as well as the evaluation of the program are the monopoly of the instructors and why the masses who are engaged in farming on a daily basis are totally excluded from direct participation in the program. Whose knowledge is it that the program promotes and how are the instructional strategies related to the development of skills and attitudes for the status quo? What explains the particular forms of knowledge legitimation? These kind of questions and issues are of little interests to behavioral psychologists who unceasingly devote their attention to the performance and exchanges between students and instructors.

At the bottom of these issue is the different way in which critical analysis define knowledge and the legitimate ways of its acquisition. As an oppositional discourse to "positive knowledge", they regard knowledge to be socially constructed and legitimated according to rules and norms approved in the asymmetrical relations of power in a given society (Freire, 1988; Macedo, 1993; Ortega y Gasset, 1964; Giroux, 1988; Apple, 1982). In various ways they show that schools reproduce the social relations of production in the economy and stress further the way in which the actual experience by the learners and the instructors reflect accommodation, negotiation and contestation rather conformity as mechanistic theories of education tend to assume. In identifying these processes, critical analysts argue for the development of a new language of schooling which captures fully the intricate dynamics in the educational processes characterized by the incessant struggle between knowledge, power and culture in order to unravel fissures in the system which could be useful sites for transformative action. As Freire (1988) puts it, there is need for educators to conduct their work guided by the need to effect critical consciousness or "conscientization" that leads to social action to transform social reality masked in the economic and social structures of the capitalist order. His call implies the rearrangement of educational objectives to tally with the needs of human emancipation but at the same time demanding symmetrical positioning of the learners and instructors in a contrary fashion with the traditional approaches.

Implicit also in this philosophy is the adoption of a transformative research orientation that is radically different from the top-to-bottom styles under which humans are merely objects for the researcher. The aim of transformative action research is to draw the full participation of the learners into the research arenas to identify, define and resolve socially-defined problems. In a word, to become researchers themselves. Applied to agricultural research, the knowledge which farmers have accumulated over the years is to be put at the center stage by the researchers unlike in the traditional approaches which despise the farming communities as "ignorant, primitive and illiterate". This is a vital point at the heart of several critics of the traditional model who call for closer contacts between scientists and farmers (George, 1994; George, 1976; Chambers, 1983; Rhoades, 1984). In particular, they are critical of the Training and Visit System (T &V) of agricultural extension which makes the a *prior* assumption of the superiority of the knowledge held by research scientists as advocated by traditional research approaches (Rogers, 1983; Gatere, 1988; Benor & Harrison, 1977). Put fairly differently, the approaches to knowledge generation and the application of such knowledge used by grassroots-based development organizations and peoples' social movements are endorsed overwhelmingly for their capacity to empower and respect the cultural and ecological diversity for which the top-to-bottom approaches show little interest. Based on these arguments, this study will explore the various issues and problems raised regarding the generation and utilization of knowledge in South context with particular reference to the agricultural science program at Makerere University in Uganda.

1. 6 **Statement of the Problem**

By 1962 when Uganda became independent, the world economic order in which the modernization paradigm reigned was firmly in place. International agencies located in the North were already actively involved in addressing and resolving numerous development problems at a global level but without much success. For societies such as Uganda which had just become independent, national development broadly conceived required a reversal of the process which had adversely affected their societies for several years. Furthermore, in order to bring about qualitative changes in society the political manifestos by the contending political parties spelt out the need to confront the new but more subtle forms of domination under neo-colonialism. In short, the modernization paradigm as a provider of development guidance was to be rejected in favor of the critical perspectives which put human history at the center.

In view of the fact that Makerere University owed its institutional existence to the colonial traditions, this study investigates the extent to which the modernization paradigm vis-a-vis the critical paradigm influences development in Uganda. More specifically, it is geared towards understanding the extent to which the competing modernization and critical paradigm influence and shape the agricultural science program for rural and national development in the views of the students in the final-year Bachelor of Agricultural Science program as well as the world views of the instructors and governmental bureaucrats in Uganda. The study is also focused on a close examination of various documents such as the syllabi, academic records, research reports and theses, course unit and final examinations, evaluation reports and other documents which carry the data relevant to the study. To what extent does the modernization paradigm continue to play a guiding role in rural development in societies such as Uganda?

1. 7 Purpose of the Study

The main objective of the study was to investigate the appropriateness of the Agricultural Science degree program in Makerere University in terms of the paradigms of development as defined in the problem statement above. More specifically, the study is focused on the following issues: (1) what views are held by final year students in the study program on questions of rural and national development; (2) how do these views relate to the paradigms of development; (3) what kind of curriculum content and pedagogical styles are reflected in the program; (4) how appropriate is the agricultural program to the needs of rural development; (5) what do the final year students hope to accomplish at the end of their studies under this program; (6) what views are held by instructors for the program on issues and problems of rural and national development; (7) how do these views relate to the competing paradigms of rural and national development; (8) what views are held by governmental bureaucrats and administrators on the relevance of the agricultural science program for national development; (9) which research orientation (s) in relation to the paradigms of development is/are promoted in the program; and (10) what external influences could have influenced and shaped the agricultural science program in relation to rural and agricultural education in Uganda.

1. 8 Significance of the Study

As a study which links theoretical and practical aspects of agricultural science education to rural and national development, this work is directed towards making an original contribute to the ongoing debate on the relationship between higher education and national development in South contexts like Uganda. In view of the fact that most researchers on this subject have tended to focus on the macro aspects of educational change and development, the study will make an original contribution towards an understanding of the impact which national and international influence have on the classroom practices in agricultural education. In particular, it will shed light on the world views promoted by international agencies and national governments on the subject of pedagogical theory and practice at the institutional levels. The world views, research approaches and methods of knowledge legitimation often professed and implemented by development agencies and national governments need to be subjected to a close scrutiny at the micro levels to ascertain how they influence instruction and methods of evaluation.

Thus, the findings in the study should greatly illuminate the possibilities for enhancing our understanding of the social reality of the marginalized groups in order to improve the kind of interventions available to different organizations and individuals engaged in rural and national development. Consequently, the finding should be beneficial to grassroots-based development agencies and peoples' social movements, classroom instructors and academic leaders, national governments and international agencies which are directly involved in mitigating poverty and underdevelopment in the South. Also, through the findings in this study, individual researchers and research organizations will benefit and continue to fill the gaps that the study has revealed in order to build on the body of knowledge which has accumulated in the field of development education.

1.9 Scope of the Study

One main limitation facing this study is that the rural poor to whom attention has been directed were not part of it. This was largely due the limitations imposed by funding and the time available for the study. As a result, the study does not tap what rural masses themselves think regarding different questions and issues on their existential and material needs. However, as suggested in the final chapter, attention of other researchers has been drawn to focus on this aspect of the study. Another delimitation of the study is that only final-year students were included again due to resource constraints. However, this also allows for the final impact of the study to be determined just before the agricultural graduates leave the University for their assigned role in national development.

1. 1. 0 Arrangement of the Thesis

The thesis is arranged into seven chapters. After setting the conceptual framework which provides the opening statements regarding what the study is all about, the second chapter gives a critical review of the relevant literature. The purpose was to provide the reader with an understanding of the basic concepts, methodologies and findings in previous studies done by other researchers. Broadly speaking, this chapter makes a critical review of what researchers have said on issues and problems related to the competing modernization and critical paradigms on development and how these views are related to agricultural higher education for rural and national development for South societies such as Uganda. Following the literature review is the chapter on the methodology which carries detailed information on why the qualitative methodology was preferred over the other methods such as questionnaire survey. This chapter also outlines the locale of the study, methods of population sampling, instruments and procedures for data collection, methods of analysis and the methodological difficulties encountered in the study.

The next three chapters after methodology are devoted to data analysis as follows. The fourth chapter analyses the data obtained through the students' voices in the interviews and from the undergraduate research reports. Their views are subjected to a close examination on the evaluative criteria of the critical paradigm. Several extracts from the views presented by the students in both the interviews and the research reports are reproduced in the analysis for the benefit of the reader and for those who agreed to take part in the study. In chapter five, the world views of the instructors and governmental bureaucrats are captured and also analyzed on the basis of the critical paradigm in a similar fashion with the preceding chapter. Also, the data from the examination questions that constituted part of the program evaluation are presented and analyzed critically according to the theme of the study. Chapter six is very useful in bringing out insights from the macro-context which impacts on the institutional practices as reported in the preceding two chapters. Apart from the analysis of the relevant documents, the Master of Science (Agricultural Economics) theses by the student researchers trained under the USAID/MFAD program to play key roles in policy making and implementation in the Ugandan society are analyzed.

Finally, the summary and conclusions in chapter seven is a synthesis of the entire work which also gives recommendations arising from the findings which various interest groups may find useful for future action. Following this are a number of appendices which the reader is likely to find useful to refer to at various points during the reading of different chapters. Appendices shown in A are mostly maps necessary to show the administrative boundaries of Uganda, rural population distribution and farming systems that were obtained from the International Bank for Reconstruction and Development (IBRD) and the census reports in Uganda. This is general information which, if studied, provides the reader with background understanding of the Ugandan context in which the study was done and also helps in locating numerous place names at the various stages of the report. The appendices in B show information pertaining to students in this particular program plus others enrolled in different Faculties and Schools of the University. Appendix C give information on the *Book Bank* recently put in place to carry texts and other teaching materials which in the opinion of the departments are central to the particular disciplines. Reference is made to this a number of times in the data analysis. Also, an outline of the practicum for the students is provided to which constant reference has been made in the data analysis in particular. Appended in D is vital information on research. As will shown, the Manpower for Agricultural Development (MFAD) program has been crucial in shaping the agricultural research orientation and activities in Uganda especially during the NRM period. Again, throughout this work a lot of reference has been made to the kind of research conducted by the Faculty of Agriculture under USAID funding. This is followed by the course structure for different options in the program which was extracted from the Faculty Handbook and which are referred to quite extensively too in various discussions. The rest of the appendices provide general information such as the correspondences which may serve as proof for the procedures followed in the study. Though minor, they are sources of additional insights into the research process which led to this document.

CHAPTER TWO

REVIEW OF LITERATURE

1. 1 Introduction

In this chapter, the theoretical and empirical literature is critically reviewed to shed light on the political economy of poverty and underdevelopment and the role of education in that process. More specifically, the literature review is dedicated to the need to understand the polarization and marginalization of large segments of the globe as a result of the unequal expansion of "capital accumulation on a world scale". As a study whose main thrust is to understand the poverty and underdevelopment, issues and problems which are discussed relate to the interaction between the external and internal forces whose major outcomes are the exclusion of the masses from decision making processes on issues which greatly affect their welfare and the environment. The study is also tailored to examine the role played by the educational processes towards the reproduction of world views and knowledge generation methods and validation geared to the maintenance of unequal power relations globally. The central concern of the review is to shed light on the forces which continually prevent the development of academic discourses based on indigenous philosophies and epistemologies in order to promote peaceful development and social harmony.

Put in a slightly different way, this literature review is directed at providing a working knowledge on the competing modernization and critical paradigms which explain poverty and underdevelopment in the South Societies and the forces which shape and influence the development of university agricultural science curricula for rural and national development. Furthermore, the contrasting views, found in the literature about issues, problems and strategies for rural and agricultural development will help illuminate the paradigmatic emphasis in the curriculum for agricultural education at Makerere University. Although the review is primarily concerned with this one institution, the kind of issues and problems which the contrasting views explicate also have similar ramifications for other societies in the South.

The principal focus in this work is laid on understanding the enduring social contradictions in which the masses are constantly under threat of death from persistent hunger and recurrent famines in contrast with the affluent urbanites who, although having little to do with agriculture or food production, are better nourished and indeed eat food in excess (except for the growing sector of urban poor who have often migrated into slums from the impoverished countryside). What social dynamics are responsible for the contradictory situation in which the masses who are engaged in agriculture are adversely marginalized and excluded from the national wealth produced through their social labor? What part might the local elite play in charting policies which impact negatively on social welfare of the majority of the population in the rural areas? What kind of linkages and processes might be in existence between the local and transnational capital to create famine and mass starvation in the South? How do the competing paradigms of development and underdevelopment relate to the issues of social inequality and poverty? To what extent are external forces responsible for shaping and manipulating social consciousness in the educational systems in order to perpetuate world views, research approaches and methods of knowledge validation to maintain the status quo which is characterized by unequal distribution of wealth at national and global levels? In particular for this study how does the agricultural science curriculum at Makerere University relate to such issues and questions?

Briefly, in the modernization paradigm of rural and agricultural development, the major impediments to social progress are viewed at two levels. First, its proponents say that lack of technology and credit in the agricultural systems are the real bottlenecks to sustained change and social development among poor societies. The cure often suggested is simply to provide "aid" from the North organizations and governments in the form of fertilizers, pesticides and herbicides as well as high-yielding variety (HYV) seeds. They also push for the development of efficient marketing channels as a panacea to the commoditization of farming. Secondly, the advocates of the development model argue for "human resource development" (HRD) as a strategy to provide personnel with the "right" attitudes and skills to provide entrepreneurial leadership and technical development. These two conditions are central to the modernization of agriculture on the basis of the experience of the North industrialized nations.

The critical paradigm in the "development debate", on the other hand, explains social inequality between and within societies through a systematic analysis of the unequal participation of various actors in the world economy which polarizes and marginalizes the weak. The thrust of their argument is based on the effects of unequal power relations between North and South societies and how marginalization of vast segments of society occurs. The role of education is seen to be where the reproduction of an unjust status quo through the socialization of the elite in the South whose privileged location in the social order is dependent on the impoverishment of the masses. Following this opener to the issues and problems for analysis, it would be useful to lay close focus on the modernization of agriculture since the 1960s after most South states obtained their independence.

1. 2 Modernization of Agriculture and Development

With the end of the World War II, proponents of the modernization paradigm put together the Bretton Woods institutions (IMF and the World Bank) to address and resolve the psychological and structural impediments to development in the South societies along the experience of the North. Since then, they have become the leading international agencies which provide advice and funds to development for almost all sectors of the economy. In their view, underdevelopment represents a particular stage in the development process along the unilinear path experienced by North nations (Rostow, 1971; Parsons, 1959). The cure was to provide technology as well as to develop Western-type institutions throughout the "less developed countries" which would provide the necessary training for top-level management in all societies concerned. Apart from the training undertaken locally, the agencies also made funds available for advanced education in Northern universities in the pursuit of the agenda to provide the South societies with "modernisers" for national development.

Inspired by Max Weber's *Protestant Ethic and the Spirit of Capitalism*, the proponents of the modernization paradigm pinpointed the necessity to change the attitudes and beliefs-systems among the "natives" of the South in order to develop the missing "achievement motive" already found in North societies (Inkles & Smith, 1974; Hagen, 1962; MClelland, 1967). This psychological dimension to the development process was geared towards overcoming traditional beliefs and practices which were viewed as the obstacles to social progress. Thus, the values and beliefs by the North peoples were regarded as universal and necessary for all societies. The historical and cultural peculiarities which are important to critical analysts were simply dismissed. Consequently, the institutions set up after independence were more of caricatures of the North itself since there was hardly any attention accorded to local cultures and histories. This is an important point that we need to bear in mind while approaching the thorny issues and questions of development and underdevelopment today.

As stated above, the proponents of the modernization paradigm in agriculture stressed the commoditization of farming through increased reliance on chemicals and modern marketing channels as laid down in the principles of liberal economics. These ideas were translated in the mid-1960s to the "green revolution" which was initiated with the tacit support of world development agencies for implementation in India, Mexico and the Philippines to enhance agricultural productivity to resolve the problems of food shortage for the masses (Borlaug, 1980; Burki, 1977; Eberstadt, 1971; Schultz; 1964; Walters, 1982; Yudelman, 1964; FAO, 1983). In this modernization of agriculture, famine and hunger were viewed to be a result of low productivity, not poverty. As will continue to show, the institutions which came to dominate the development scene were informed by this diagnosis of underdevelopment and poverty.

In order to fully implement the ideas embodied in the "green revolution", a number of research institutes specifically for plant breeding were set up such as the International Wheat and Maize Improvement Center (CIMMYT) in Mexico, International Rice Research Institute (IRRI) in the Philippines, International Center Tropical Agriculture (CIAT) in Colombia, International Potato Center (CIP) in Peru, International Crops Research Institute for Semi-Arid Tropics (ICRISAT) in India and International Institute of Tropical Agriculture in Nigeria. For the first time agricultural research was brought under a single umbrella of the Consultative Group in International Agricultural Research (CGIAR) in 1971 (Howe, 1975; Feder, 1979). It is important to note that with the creation of the CGIAR as a world organization the possibilities for any society to conduct training and research on the basis of locally-defined interests and needs was greatly diminished.

In the current decade, new developments in science and technology have resulted in what is known as the "biotechnology revolution" geared towards feeding the masses, not through conventional farming methods but under laboratory-based conditions (Buttel & Barker, 1985; Buttel, et. al., 1985). Also, it is noteworthy that North universities in general upon whom the poor nations continue to be dependent for their training and research are currently undergoing a process of rapid restructuring in order to respond to the needs of the free market economy (Kenney, 1986; Newson & Buchbinder, 1988). The same old argument of dealing with food problems through technical solutions is being advanced to justify all the changes which are taking place globally. Whether this is a sound diagnosis of the cause of hunger and starvation which threaten millions on a daily basis shall be analyzed later. At the moment what needs to be emphasized is that although still largely confined to the North, the "biotechnology revolution" has already shown notable effects in some South societies through the agricultural development policies promoted by international development agencies.

There is need, however, to stress that the achievements of both "revolutions" in increasing the amount of food available has been impressive already. Rice surpluses in societies like India have been remarkable achievements which could not have been possible without the systematic application of modern science and technology. The North itself produces a variety of foodstuffs in large quantities to the extent that food shortage at the societal level is unknown in the vocabulary of their citizens. These impressive achievements have silenced the poor societies into accepting cooperation with the international finance capital to make similar gains at home.

In the last two decades, agricultural development in Africa and elsewhere in the South has followed closely along the demands stipulated under Structural Adjustment Programs (SAPs) of the IMF for which no society is exempted. In 1981 the World Bank published a document entitled *Accelerated Development for Sub-Saharan Africa: An Agenda for Action* or simply known as the *Berg Report* , which African societies have adopted without exception. The centerpiece of the document was that all barriers and regulations that might impede the flow of capital or restrict operations of the marketplace should be dismantled. Thus, investors should be allowed to put their money where they like; manufacturers to sell where the prices are highest and labor to move where wages are highest although in practice only capital is permitted to move by the world economic regulations (Ellwood, 1993; George, 1976; Williams, 1994; Bromley & Bush, 1994). Thus, various South governments have been compelled to privatize industry, liberalize the economies by opening them up to foreign investment, devalue local currencies against the US dollar, reduce social expenditure on vital services such as education and health and cut wages drastically. Eight years later another document entitled *Sub-Saharan Africa: From Crisis to Growth: A Long Term Perspective Study*, was published which, although less focused on "price" as a determinant of economic choices was essentially similar in objectives and principles.

As Bromley & Bush (1994) indicate, other agencies like USAID apart from having identical policies with the World Bank actually work closely with it to railroad through policies whose implementation by the South governments is strictly monitored through numerous political conditionalities. Whereas the official argument by the agencies is that continued funding needs to be tied to political governance and democracy, when closely dissected the extraction of strategic rents from the societies concerned rather than any genuine desire for grassroots democracy, transparency and empowerment is the real underlying motive. As economic policies geared towards the commoditization of agriculture through the "market economy", they are a continuation rather than any radical break from past agricultural modernization strategies.

Accompanying structural adjustment programs with similar guidelines regarding educational development were also issued by the World Bank. In its document entitled *Education in Sub-Saharan Africa* published in 1988, governments throughout Africa were urged and coerced to sift the cost of education to individual families and private agencies, improve the quality of education but without raising issues regarding its colonial content and teaching styles and finally to slice considerably student enrollments in higher education ostensibly to make it possible for "Education for All" to occur by the year 2000 as endorsed in the Jomtien Conference in 1991. As will be indicated in more detail later, higher education and agricultural science education in particular were urged to develop their curricula and research approaches closely upon the needs of the "market economy" demanded by the relatively prosperous North.

As earlier said, it would obviously be foolish to ignore the dramatic achievements under the "green revolution" and what science and technology can offer in agricultural development especially when we note rice and other surpluses which have occurred. However, our assessment of the development experience is bound to be incomplete without paying due regard to its effects on the environment and in deepening social inequalities which have had other effects on social welfare and harmony. Critical analysts say that the environmental destruction which occurred in societies such as India and the Philippines cannot be counterbalanced by the food surpluses. Apart from direct damage associated with chemicals used in agriculture, the large army of landless people that were the creation of the "green revolution" exacerbated the environmental destruction especially in the Philippines as noted by Bello, Kinsley & Elinson (1982). They draw attention to the fact that the fertilizer plants which depended on imported inputs put a considerable strain on the foreign currency earnings of that society generated from sources other than agriculture. Other problems associated with the modernization paradigm in agricultural development are the massive debt incurred in the attempts to implement development projects that use costly inputs from the North industries but which are also geared towards production of items for the elite minority rather than the masses. The literature on development is replete with the poor performance of the mega-projects under agricultural modernization which have directly led to the poverty of the majorities.

Africa, For example, has been so impoverished through the policies in the modernization paradigm that the masses toil simply to repay debts rather than earn any decent living. As Bello (1993:136) sums it,

> Africa today faces serious collapse on a continental scale. In 1980-85, the economies of nine African states shrunk, while those of 11 registered hardly any growth. After rising in 1960s and 1970s, per capita income will drop by 1990 to its level at independence in the 1960s. All the plagues of underdevelopment appear to have come together in a rather merciless fashion in the past decade. Drought, desertification, sharp drops in prices of exports, massive indebtedness, skewed development priorities and civil

> war have combined to make Africans the world's most hungry and malnourished people.

As he puts it, the brunt of economic collapse is borne by the rural masses who have been reduced to eating rats in some societies. Yet, there appears to be no immediate remedy for these contradictions within the modernization paradigm closely backed by world agencies. On the contrary, the development agencies continue with the same recipes which have produced unbearable suffering and misery.

As George (1976) convincingly argues, South societies have been compelled to export anything of value to repay the structural adjustment loans (SALs). As a result, rain forests have been decimated while minerals and other salable items have found their way to the North. The environmental destruction which is the result of mounting poverty clearly now threatens the survival of the masses. The World Bank as an agency of world capitalism but which claims at the same time to be at the forefront in the struggle to mitigate global poverty has in practice turned out to be against the basic needs of the masses. Reproduced below is an internal memo by Mr. Sommers, Chief Economist with the World Bank entitled **LET THEM EAT POLLUTION** (*The Economist*, February 8, 1992):

> Just between you and me, shouldn't the World Bank be encouraging *more* migration of dirty industries to the LDCs (Less Developed Countries)? I can think of three reasons: (1) The measurement of cost-impairing pollution depends on the foregone earnings from increased morbidity and mortality. From this point of view a given amount of health-impairing pollution should be done in the country of lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up that. (2) The costs of pollution are likely to be non-linear as the initial increments of pollution will probably have very low cost. I've always thought that *under*-populated countries in Africa are vastly under-polluted; their air is probably vastly inefficiently low (sic) compared to Los Angeles or Mexico city. Only the lamentable fact that so much pollution is generated by non-tradable industries (transport, electrical generation) and the unit transport costs of solid waste are so high prevent world-welfare-enhancing trade in air pollution and waste. (3) The demand for a clean environment for aesthetic and health reasons is likely to have a very high income-elasticity. The concern over an agent that causes a one-in-a million change in the odds of prostate cancer is obviously going to be much higher in a country where under-five mortality is 200 per thousand. Also, much of the concern over industrial atmospheric discharge is about visibility-impairing particulates. These discharges may have a very little direct health impact. Clearly trade in goods that embody aesthetic pollution concerns could be welfare-enhancing. While production is mobile the consumption of pretty air is non-tradable. The problem with these arguments against all of the proposals for more pollution in LDCs (intrinsic rights to certain goods,

> moral rights, social concerns, lack of adequate markets, etc.) (is that they) could be turned around and used more or less effectively against every bank proposal for liberation.

Closely scrutinized, the memo indicates that the poor millions in the South are disposable. Not only are the social conditions of the masses deteriorating steadily due to loan repayment, the world agencies and their government have failed to show any commitment to the suffering of the masses but instead continue to view their habitat as the dumping ground for toxic wastes from the industrialized North nations.

As victims of the modernization paradigm in export-led growth strategies, millions have been put in a situation of perpetual economic uncertainty and destitution by policies which created famine and mass starvation in rural as well as urban slums. As Payer (1982:121) has noted,

> This incessant emphasis on drawing poor people into the market economy evades the question as to whether these people are really in need of this kind of help and whether they are in need to be dragged into the dependence on the market. But from the Bank's point of view it is explicable, probably even inevitable. The "poorest of the poor" in the member countries are the victims of either landlordism, or of the already accomplished "modernization" of agriculture in the most accessible areas (or both). They have either migrated from the rural areas to the cities, and thus ceased to be a rural problem, or from the rural labor force, whose continued degradation is essential to the profitability of commercial agriculture, or they deliver the surplus they produce to their landlords. For the first group the Bank will build water spigots in the slums. For the second the Bank will do nothing, because it is allied with commercial farmers. Although the Bank talks a lot about creating employment, it is never suggested that this should be to such an extent as to raise the average real wages throughout society; on the contrary, Bank policy strives to keep wages low, in order to keep prices "competitive" on the world market. The third group can be helped by reforms of the tenure system which the Bank timidly endorses in a general way, if the landlords are traditional sort and not modernizing agricultural entrepreneurs.

Consistent with the modernization paradigm, the Bank views rural people engaged in the production of food crops and related activities for their livelihood as traditional or "primitive". The remedy proffered is to transfer technology and credit so that the standards of living could rise.

Thus, the notion of the "market economy" which has meaning and use only for the international agencies makes poor societies vulnerable to famine and hunger in a number of ways. As Turshen (1989) elaborates, hunger and famine occur thorough a combination of the following forces: (1) by using local arable land for producing non edible crops such a cotton, sisal and jute, crops that have no food value at all; (2) by devoting much valuable acreage to crops that are considered food but have no nutritive value, for example coffee and tea; (3) by converting food into feed like in the cultivation of crops such as maize and soybean which are destined for export to feed animals in the North by governments hungry for foreign currency to sustain imported lifestyles; (4) by transforming food into export cash crops, as in the production of peanuts (ground nuts) and sesame which are exported for their value as sources of oilseed in exchange for foreign currency.

The export-growth policies and strategies of most societies in the South are greatly influenced by the funding from the North who need cheap labor from the masses. Judging from the foregone analysis, even in cases where governments may show a genuine desire to serve the masses their efforts have been severely constrained through the linkage between political conditionalities and the continuance of funding as we said before. As a matter of fact, the IMF and World Bank are so powerful in the Western world economy that any society which objects to the repayment of loans is liable to economic sanctions as well as direct military invasion to restore "world peace and democracy" as defined by the US. In most cases, the weak rather than the strong are victims of continuos reprisals from the US-led North alliances and interests. On the other hand, the local elite who control state power have very little to worry about since they are properly remunerated for their "co-operation" in international and national development. As George (1993: 27) painstakingly notes,

> The Third World elite don't have much cause for complaint either. They have weathered the "lost decade of the 1980s" with relative ease and have sometimes benefited handsomely from it. They too benefit from plummeting wages. Their money is often in safe havens outside their countries. Each time IMF requires a devaluation of national currency to encourage exports those whose holdings are in foreign currencies automatically become richer. And although public services may deteriorate or close down, rich people can afford private ones. So it is not surprising that Third World governments have failed to unite and demand debt reductions.

Thus, the corruption which has become rampant throughout South governments has reduced the masses into destitution as the returns for their labor find their way out to the North, often with the active encouragement by foreign agencies.

In sum, while the increases in food available for the world's population can not be discounted, there is need to assess these outcomes against the levels of poverty and underdevelopment which they have produced in various societies. Through structural adjustment programs, the world's majorities are poorer today than they were at the time of independence. The proponents of the state model of development backed up by finance capital often fall short of recognizing the massive environmental destruction and the deepened social inequalities which are at the bottom of malaise and the absence of peace among the poor. Due to the mistrust held by the corrupt and decadent elite for the masses, in several instances transnational corporations have been invited to assume the role of agricultural and industrial production using cheap labor to meet the needs of North populations. The outcomes have normally been the entrenchment of the social inequalities and poverty as well as the reduced legitimacy of the coercive states.

2. 3 **Transnational Corporations, Social Inequality and Environmental degradation**

The primary reasons for the reluctance by rural farmers to cultivate cash crops are related to the social disruption it causes to the cultivation of food crops for domestic consumption as well as the low monetary returns which accrue to farmers from an agricultural economy in which they control almost nothing. As said, the response by governments has normally been to seek to eliminate the small farmer through the creation of big commercial farms devoted to the cultivation of cash crops using the labor from the displaced masses and tenant farmers. Dinham & Hines (1983) and Burbach & Flynn (1980) have noted the social disorientation often suffered by farmers as in the case of Kenya and Latin America where *Del Monte* took over the growing of pineapples for export.

Thus, without the means to meet basic needs, the masses are reduced to work as seasonal laborers in farms which manipulate their ability to unionize or even to have any say in the economy. It is noteworthy that the Agricultural Sector Memorandum (1993) for Uganda has most recently elaborated a series of policies geared towards the incorporation of women into the modern economy ostensibly to correct gender imbalances in the sector but without causing any disturbance to the social and economic structures which perpetuate poverty. In their official rhetoric, women need to be brought out from household chores to earn a better living in the "modern sector" but in reality the hidden intentions are directed at destroying the traditional family network through the "market forces" to facilitate unlimited capital accumulation. The drive to maximize profits is so pervasive in the agenda of transnational corporations that hardly any change of attitude could be envisaged in the near future.

With agribusiness firmly in control of agricultural production system on the basis of the principles of "economic rationality" or "rational calculation" in entrepreneurial organization and management for profit maximization, the cultural dislocations arising primarily from the marginalization of the masses becomes the pivotal point for societal destruction. Once culturally derailed, no meaningful national development could be said to occur as the experiences of the native peoples all over the world demonstrates. The invasion of the Indian culture in North America is a case in point where the "civilizing mission" of the Europeans destroyed the self confidence of the Indian population to a point of no return. As Said (1990:72) has well argued regarding the colonial project,

> This cultural process has to be seen if not as the origin and cause, then at least as the vital, informing, and invigorating counterpoint to the economic and political machinery that we all concur stands at the center of imperialism.

Apart from such massive exploitation of labor and the attendant cultural dislocations arising from liberal policies of development, various environments have likewise been especially by destitute and poor masses (Redclift, 1984; Timberlake, 1985). Local and international efforts to reverse this sad state of affairs have been sabotaged or undermined in the drive towards unlimited accumulation of wealth. In the Rio conference on environment and development the North states remained resistant to the crucial link between environmental protection and North-South equity, suggesting very little hope that poor societies will have any bright future. As Carothers (1993:15) reports,

> Biodiversity Treaty was shelved at the urging of the US biotechnology industry. Specific proposals supported by the South and by environmental groups were defeated. These included the call for "effective monitoring, enforcement and imposition of penalties" for illegal transport of hazardous wastes. All reference to over-consumption by rich nations were removed, as was any mention of specific schedules for reducing carbon dioxide emissions. Even discussions about disarmament were shunned.

Again what needs to be stressed is that in many cases, the collaboration of South governments in signing contracts for waste disposal in their own societies has been tremendous as this too is another way in which private accumulation of the various bureaucrats is accomplished. The active collaboration of the South governments in the destruction of the environment through their acceptance to use their societies as dumping grounds for toxic wastes is related to the desire to transfer personal earnings to financial institutions in the North. For George (1976), the structural adjustment programs which have paved the way for export-oriented growth and foreign investment have cured nothing but have increased debt, environmental destruction and further marginalization of the poor. In societies which have attempted to counter foreign-dominated agribusiness such as Tanzania which began to process its own coffee for export, numerous barriers have been set up by the world system. This ranged from sabotage of the delivery of spare parts to the exclusion of their products from North markets. Similarly, societies such as Kenya and the Philippines which have encouraged the growth and dominance of agribusiness have been made highly dependent on costly imports e.g. machinery, fertilizers, pesticides and the dictates of North-controlled commodity regimes (Dinham & Hines, 1983; Bello, Kinsley & Elinson, 1982). In sum, while the transnational corporations and the local elites have profited handsomely from the production systems, the rural masses and the urban slum dwellers have experienced further marginalization.

Yet, agribusiness and North governments persistently defend their activities by saying that the investments and trading links are beneficial to societies in the South and that what is good for them is good for everybody. As one business summed it, "It is a high time that the United States aggressively trades in Africa. Every one billion dollars worth of new business there will create 30,000 to 40,000 jobs in the US, and if we do not get into the development of these countries now, someone else is going to do it" (Dinham & Hines, 1983:159). Although the capital is generated in the South by the transnational corporations with local labor, they still remain based in the North. As Hoogvelt (1978) maintains, the returns from the exploitation of labor which are said to help in the balance-of-payments constraints through the infusion of foreign currency are in reality siphoned to the North through carefully calculated ways which the "sophistication" of any state can not detect.

> The reasons for these large return flows despite the underdeveloped countries' "sophistication" in their negotiations with large foreign firms, is that in today's modern imperialism, most of the profits are repatriated not as profits but by means of what is called transfer pricing or double accounting. This is the practice of over-pricing by the parent company of the home-office sales to their subsidiaries and of underpricing its purchases from them, so that a larger part of the taxable profits are hidden under cost items. (85)

Thus, although agribusiness always wishes to paint a positive picture of "helping" the South peoples through "industrialization" and related activities, the real motives are informed by the need to maximize profits which are not reinvested in the vital sectors of the economy to sustain autonomous development but are instead repatriated to the home country to maintain the already high standards of living. In fact, as I said a moment ago, the local collaboration of the *comprador* elite makes that process not only easier but also becomes the routine business of the state.

In sum, the high-sounding rhetoric of the North industrialized nations together with their agencies towards building democracy and self-reliant development in the South reflects deep contradictions. A genuine democratic project requires the democratization of the economy where the basic needs of the masses are met and sustained and where the exploitation of cheap labor does not predominate in the agenda of the development institutions. As will be shown shortly, the "new world order" which is currently the buzzword for most of the development agencies and governments, promises the masses nothing but the continued exploitation of their labor and resources by the North. Before a brief examination of the present developments in global restructuring, it is important to touch briefly also on women in development as the most marginalized in the various economies.

2. 4 Women in Development

There are two broad ways of looking at the issue of women in national development in the "developing countries" of the world. The first view is that which views the poverty and underdevelopment among women as a social group in terms of the conflict between men and women and between women themselves (Boserup, 1970; Bernard, 1987). In this view, as the domain of the modernization paradigm, the cure for their poverty is to equalize social and economic opportunities along gender lines but without dislodging the macro economic and political structures that stand at the center of exploitation. This is the view held by the leading international agencies in development which claim to be at forefront in poverty alleviation among the poor.

The other view examines the poverty of women through more sophisticated analyses based on the political economy of underdevelopment to expose the perpetuation of dependence and poverty by South societies in the context of the global economic operations. This view insists that poverty and underdevelopment can not adequately be understood without a historical analysis of the world economy and how actors with relative strengths are positioned therein. Hence, women are marginalized and excluded from the benefits of development through the internal social structures which are closely tied to the North institutions and their governments (Mohanty, 1991; Turshen, 1989; Hartmann, 1993; Akeroyd, 1994). To fully grasp this issue, there is need to adopt an approach which makes a correct interpretation of history and culture devoid of racial categories of thought. This is the way to understand the subject positioning in the world economy in which women have historically been placed unfavorably.

Thus, the structural inequalities produced by the functioning of the world economy have rendered women the most oppressed and vulnerable to all forms of suffering like in the ethnic and racial conflicts which have become the lifestyle of most societies in the South. As I stressed not so long ago, agribusiness and local governments policies often work hand in hand to exploit the cheap labor provided by women and also displace and scatter families during the implementation of economic policies. The Agriculture Sector Memorandum (1993) for Uganda insists on the migration of the masses to marginal lands as solution to poverty but in reality such policies are designed to marginalize the poor further including women who, once out of their ancestral homes become even more vulnerable to exploitation and manipulation as demanded by the economy. Women, rather than men are most likely to be affected in such proposals to be later socialized under the colonial curriculum as docile and cheap labor force. As capitalism enters the worst crisis ever, the corporate interests in the North as well as the collaborating Southern governments are likely to exploit and manipulate the masses in more serious ways than ever before.

2. 5 The "New" World Order and International Labor Relations

In the last four years since the collapse of the Soviet Union, two interpretations have emerged to explain the direction in which global development and security ought to take. It should be pointed out that neither of the two versions is new since they have always competed intensely to influence the direction of world affairs for several decade since the rise of capitalism. In a book entitled *The End of History and the Last Man*, Francis Fukuyama formally proclaimed the end of socialism as the backdrop of capitalist triumph. According to the neo-liberal economic doctrine, national success and progress is achieved through "free market" and other principles of capitalism. As I indicated at the beginning, this liberal economic logic has restricted the role of the state in national development to matters of providing the "enabling environment" like infrastructure and "political stability" to guarantee the unimpeded exploitation of labor and resources in South societies.

Ignored or dismissed is the fact that for the North to rise to its present status, the state was energetically involved in the protection of domestic markets and capital at all phases of development. Even today, while the South societies are policed to liberalize their economies, the North markets for agricultural products are not only protected from the South products but they are also heavily subsidized by the state. Clearly, the main objective of the North governments and their development agencies is to ensure the perpetuation of the status quo in which the South peoples are forever in the lowest rungs of power and prestige. Thus, the "the end of history" soothes the conscience of the neo-liberal Conservative Right which has persistently embraced and defended a world system in which the center and the periphery constitute qualitatively different conditions with little hope for the possibility of change. In other words, the world system as endorsed by Fukuyama seeks to maintain the status quo whereby societies in the South are dependent upon transnational capital with all its marginalizing effects.

In contrast, critical analysts view the post-cold war "new world order" as a continuing and deepening crisis for the poor majorities in the South but also for the working classes and minorities living in the North. As earlier noted, the Rio Summit was subverted by the U. S biotechnology economic interests by shelving important issues geared towards environmental protection and sustainable development for the present and future generations. This is a clear example to show how the powerful corporate interests by North states must be protected at all costs although the hazards of environmental destruction are also threatening survival in the North. As poverty intensifies in the South environmental destruction has worsened and the resultant interstate and ethnic violence engulfs entire communities. There is no one today who needs to be reminded of the recent conflicts in Rwanda, Bosnia and Iraq in which millions perished while the environmental destruction associated with war intensified.

At the heart of global conflict and war lies the crucial role played by the US and its North allies in policing and silencing any form of dissent in the world. As Tandon (1993) points out, the United Nations itself is now at the disposal of the USA to implement its militarist agenda to invade and expropriate resources at will especially among those who might show any indications to refuse their place in the "new" world order. Rather than hunting down Saddam Hussein and "returning" him to the prehistoric times as promised during the combined assault by the G-7, the civilian population instead became the focus of military bombardment in the struggle to control the oil resources. As Chomsky (1993) majestically points out, where economic measures fail, direct invasion of South societies is normally the only option available to the North nations.

> The use of force to control the Third World is a last resort. Economic weapons are more efficient, when feasible. Western powers call for liberalization when that is in the their interests, and for enhanced protection when *that* is in their interests. (94)

Thus the current global restructuring is dictated by the need to integrate more fully the rest of the world into the US-led alliance and interests. It has also meant the strategic isolation of Africa from the world economy although its resources and cheap labor must continue to support the development needs of the North.

As the militarization of the world increases, the poverty of the masses everywhere in the South will rise under political regimes who believe sincerely that peace and social harmony will come through the barrel of the gun. There is a mounting worry that millions of farmers are also likely to lose their means of survival through the activities of agribusiness which has increasingly adopted the "biotechnology" for the production of foodstuffs that formerly were grown on farms (Sousa-Silva, 1988; Hobblink, 1992). It would appear that plans are already in place to undertake such production in the South especially through the integration of national agricultural research systems into the CGIAR funded by the leading world agencies and North governments. As will be demonstrated in the forthcoming pages, international aid agencies actively participate in the training and education of agricultural technocrats socialized to defend and protect the interests of transnational business and their own against the masses. However, despite such increasing marginalization of the peripheries, many grassroots groups and individuals continue to organize to raise human consciousness over the dangers that besiege our societies today and to struggle for transformation to create a better world for all. Education that can empower people to challenge structures of social, economic and political injustices is vital in building an authentic new world order. It is now pertinent to also briefly review the historical origins of educational institutions and structures in the South in order to gain some understanding for the kind of steps that may be necessary for mounting transformative action.

2. 6 **Colonial Education and the Socialization of "modernisers" for Social Progress**

In looking at education and development in the South following independence in the 1960s, it is useful to begin with the examinations of the assumptions, beliefs and attitudes held by missionaries, explorers, slave trade abolition movements and colonial administrators who created the foundation or basis for the introduction of the present educational systems. Brantlinger (1985) has provided one of the most vivid accounts on this subject in his reference to the political construction of Africa. In reference to *Heart of Darkness* by Joseph Conrad, he agrees with Marlowe that Africa became a "dark" continent but diverges to attribute this outcome to the actions of Victorian missionaries, explorers and scientists who flooded it with "light" refracted through an imperialist ideology that urged the abolition of "savage customs" in the name of civilization. The modern educational systems implanted under colonialism produced the "modernisers" as carriers of Western morals and ethics and who have since proved to be a social nuisance when viewed from the perspective of the social needs of the masses. The result has been social polarization characterized by some of the most atrocious calamities that have faced the "dark continent" in recent times. In his most eloquent exposition on the subject, Said (1990:75) says:

> The great colonial schools, for example, taught generations of the native bourgeoisie important truths about history, science, culture. And out of that learning process millions grasped the fundamentals of modern life, yet remained subordinate dependents of an authority based elsewhere than in their lives. Since one of the purposes of colonial education was to promote the history of France or Britain, that same education also demoted the native history. There were always the Englands, Frances, Germanys, Hollands as distant repositories of the Word, for all the contradictions developed during the years of productive collaboration. Stephen Dedalus is a famous example of someone who discovers these facts with unusual force.

For the colonizer, the mission was to civilize and instruct the native to abandon the "savage customs" regarded to be at the center of underdevelopment. Thomas Fowell Buxton (1968:10), who succeeded William Wilberforce in the slave trade abolition movement wrote as follows regarding Africa:

> Bound in the chains of the grossest ignorance, she is prey to the most savage superstition. Christianity has made but feeble inroads on this kingdom of darkness, nor can she hope to gain an entrance where the traffic in man-occupies the ground.

The Christian missionaries at the forefront for "civilizing the natives" were uncompromisingly opposed to indigenous cultural forms. Thus, from the beginning of the educational systems, the development of autonomous personalities on the basis of specific cultural and historical experiences was stunted and formed the basis for the future alienation and social disharmony before and after independence. Several social historians of the empire truly regard this epoch as the watershed of the cultural disorientation which has proven almost impossible to overcome in the subsequent years.

Continuing with Brantlinger, the abolition of the slave trade was never a humanitarian task geared towards liberation, as often portrayed by colonial apologists both local and foreign but marked yet another imperialist onslaught to open up indigenous society towards "legitimate commerce" on the basis of Western ethics and morality. The modernization of South economies proceeded often complemented by the "civilizing" activities of the missionaries and other groups that felt the need to change the history of the peoples according to the Western image. As critical analysts of colonial education have shown, schools were constructed largely to meet the needs of the colonizers and benefited only a limited sector of the newly emerging nations (Carnoy, 1974; Altbach, 1979). As an alien system of education, not only did it inculcate values for Westernization and depreciated local cultural frameworks, it also played a role in creating authoritarian methods of teaching and helped impose the political and economic system on the indigenous society. Graduates of this modern educational system were socialized to see their role in the colonial and post-colonial societies in terms of the modernization paradigm. Although there was much talk and action on changing the systems of education to follow closely along the lines stipulated by the post-independence development plans of different societies, how these attempts have fared need to be seen against the backdrop of the assumptions, beliefs and values on which the systems were based from the very beginning. The "modernizers" who took responsibility for educational change were themselves ardent believers and defenders of the colonial education based on a racial interpretation of human history.

Following independence of many societies in the 1950s and 1960s, their educational systems were massively expanded at all levels on the uncritical conviction that this would generate rapid economic and social development. This faith in the role of education in economic growth was clearly seen for example, in the Addis Ababa Conference of Education Ministers that met in 1961 to review the state of education in Africa. It was argued then that the earlier forms of education by missionaries and colonial administrators did not reflect the needs of the masses by producing the educated who were alienated from their histories and cultures. Consequently, independent governments set consciously not only to expand the educational systems but also to tailor the curricula to local needs. Thus, in societies such as Zambia and Tanzania which had no universities prior to independence, efforts were hurriedly directed at creating one or more while the elementary and secondary levels were expanded to include those who had formerly been left out. The drive to massive expansion was particularly fueled by the departure of colonial technicians and administrators who created skilled vacuum that needed to be filled with urgency. In the language of the economists of education "human resources" or "human capital" were a prerequisite for economic development as shown by the North experience (Schultz, 1977; Harbison & Myres, 1964; Curle, 1970). Hence, according to this paradigm, education should be seen as an investment with a rate of return similar to other investments in the production systems.

They convincingly drew the examples of the North to show the "developing countries" the image of their own future which was thought to materialize once labor power had been developed adequately.

> Human resources development is the process of increasing the knowledge, the skills, and the capacities of all people in society. In economic terms, it could be described as the accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepared people for adult participation in political processes, particularly as citizens in a democracy. From the social and

> cultural point of view, the development of human resources helps people to lead fuller and richer lives, less bound by tradition. In short, the process of human resource development unlocks the door to modernization. (Harbison & Myres, 1964:2)

This perspective on educational change was undoubtedly very influential in the actions of politicians, educational administrators and planners who showed little difficulty in adopting the ideas since they were themselves products of the colonial educational systems as already said.

In sociological terms, the modernization paradigm on education also saw this process as functional to the transformation from traditional to modern societies. For example, Curle (1970) echoed the attitudes of early missionaries, explorers and abolitionists when he pinpointed the "superstitions" and the close attachment showed for tradition which needed to be erased through the provision of Western-type education. To cite in full:

> They are ignorant, bound by superstition and tradition; they are chronically sick; they are unskilled in all but the crudest forms of agriculture; they are disenfranchised and oppressed; they have never been brought in touch with national life and are completely uninterested in it; if they have never been educated, the country cannot absorb them as they remain a disaffected group of unemployed intelligentsia... If, therefore, was compelled to define under-development, I would do so in terms of failure to make adequate use of human resources.

In the current decade, the supporters of the modernization paradigm through their influence in powerful educational systems and agencies have been able to entrench the paradigm despite glaring problems since independence. Curriculum irrelevance, unemployment among the educated, "drop-outs", repetition, internal and external brain drain and school-based inequalities have all demonstrated serious flaws in the modernization paradigm of education. To this day, these issues and problems have continued to mount as recognized by the advocates of the paradigm themselves.

The disillusionment over the failure of educational expansion to contribute to economic development and to narrow the social gap between classes became so glaring that it compelled educators as well as politicians to re-think the role of education in national development. The preexisting inequalities based on class, gender, ethnicity and region had not been healed by the educational systems, instead all had been made worse (Carnoy & Samoff, 1990, 1979; Bowles, 1976). Accompanying these inequalities was the pressure from the public not only to make education relevant but also to widen access as had been promised in the electoral manifestos of the contending political parties. At the same time, further efforts to provide education and other social services were beginning to be undermined by the failure of the national economies in the face of unequal world economic systems which functioned to the detriment of less powerful actors within it. In the 1970s educational reforms followed the path of vocationalization of the formal curriculum as well as the introduction of non formal programs ostensibly to mitigate unemployment and the rural-urban influx by the educated (Bacchus, 1988; Foster, 1977). This was an equally misguided and poor strategy towards social change in general.

In a book entitled *World Crisis in Education: A View From the Eighties*, Coombs (1985) details the intricacies in the educational change following the massive expansion on a global level within the modernization paradigm. Drawing on his long experience with world educational agencies, he prescribed non formal education as well as vocationalization of the curriculum as the remedies to mass unemployment and economic development. Central to his thinking and others within the paradigm was the need to keep the educated within their own rural areas through a provision of educational experiences designed for that purpose. Writing about the new focus to rural development, Coombs (1985:19) elaborates as follows:

> The new strategies and priorities that grew out of this broadened concept called for greatly increased emphasis on rural development, broadly perceived by some as a thoroughgoing social, economic, and political transformation of backward rural societies. The enlarged aim was now to increase rural productivity, employment, and income, and to meet "basic needs" of all rural people-including education, food, family planning, shelter, clothing, and, especially rewarding jobs. Special emphasis was given to improving the status of two most vulnerable groups-women and young children. These new strategies, as articulated in the early 1970s by numerous bilateral and multilateral agencies and increasingly by leaders of the developing countries, also called for a more integrated and community based approach to rural development, in sharp contrast with the prevailing top-down and fragmented sector-by-sector approach.

Although he claimed to have abandoned the "top-down" approach to development, critical analysis and experience would see this as yet another modernization-oriented strategy geared towards responding to the symptoms and maladies of the previous experience without a comprehensive analysis of the failure in the national development effort. As a development strategy which eschewed the effective identification of issues and problems at the grassroots level for resolution, it worsened rather than solved the social ills of the modernization paradigm. Thus, unemployment, social inequality, rural-urban influx and the irrelevance of the curricula have all persisted and became more firmly entrenched by the emergent elite eager to defend and protect their interests.

Toh (1983) provides a critical analysis of the modernization paradigm in educational development as depicted by Coombs and other traditional analysts. In his critique of the International Council for Educational Development (ICED), one of the leading organizations that have been responsible for this process in the South, he raises the following issues with regard to the Integrated Community-Based Approach (ICBA):

> ICED's view of official development/aid agencies is totally modernistic. Its criticisms of such agencies' role are centered on apolitical administrative failings (e.g. not learning from past mistakes; sectoral rather than integrated emphasis). There is no critical understanding in ICED's world view of foreign aid regarding the political/ideological boundaries within which major or core-state aid agencies must operate: namely their commitment to the capitalist world system and hence bias against social change which could weaken and ties the Third World societies to the world-capitalist structures and processes. It is significant but hardly surprising that no reference is made in ICED's report to the work of critical analysts like George and Feder who have exposed the ideological/political-economic underpinnings of aid agencies such as the World Bank. Even the Bank's recent campaign to help the "rural poorest" meet their "basic needs", when critically dissected, is designed more as an instrument of agricultural modernization yielding increased benefits to external interests (e.g. agribusiness MNCs) and internal elites. (126)

The point to emphasize is that educational change which has been assisted with international capital is never directed to address and resolve the root problems of rural poverty and underdevelopment as claimed by several international aid agencies and the local governments. Couched in modernization logic, the purpose was to perpetuate the world economic order in which societies in the South are located in the lowest rungs of power and prestige.

Similarly, the attempts to vocationalize general education ignored the nature of the economies and the social relations of production in which rural people are largely excluded. Foster (1977) with lucidity clarifies this point especially in his argument that the truly vocational jobs are those which exists in the economies of this societies as historically constituted. To seek a solution to social inequality without serious attention to the unequal distribution of resources in society would simply be to reinforce the status quo as the experience in several societies has shown (Bacchus, 1988; Carnoy & Samoff, 1990; Samoff, 1979). Everywhere, students and their parents were quick to detect the hidden intentions of the various governments and aid agencies to perpetually condemn them to poverty and underdevelopment through educational experiences that were hardly demanded in the economy. As a result, the vocationalization of education has been rejected by all students from all classes simply for its failure to take into account the economic realities of the underdeveloped economies. What is more, a mere introduction of technical subjects as was done in Uganda through the recommendation of the Castle Commission (1963) without paying any serious attention to revolutionary teaching methods geared towards conscientization is definitely a poor approach for dealing with problems of educational change and development (Cardinal & Miller, 1979; Macedo, 1993). The significance of this issue is paramount and requires the attention of critical educators.

In the recent past, international agencies have become even more aggressive towards hemming the educational systems of the South to the global capitalist production system. In the recent Conference on *Education for All* (EFA) which met in Jomtien in 1991, world agencies proclaimed their commitment towards the accomplishment of global literacy by the year 2000. In the case of Africa, there was also a continuity between EFA and the ideas expressed in the *Education on Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion* published in 1988 which I have briefly commented on in the preceding pages. As indicated earlier, the South debtors have been mandated to follow the policies of the IMF and the Bank as political conditionalities for a continued flow of structural adjustment loans (SALs) which I have maintained are responsible for the misery and poverty in the South. According to this World Bank (1988) document,

> Hard decisions on educational policy should not be postponed. In most African countries the cost would be continued stagnation of enrollment and decline in the quality through the 1990s. This study urgently recommends that each African nation now embrace the task of formulating and implementing an internally coherent set of policies that reflects the nation's unique history and aspirations and that effectively addresses its own recently exacerbated problems in the education and training sector.

It is noteworthy that when the Bank talks about the "unique history and aspirations", this is defined within the parameters of global capitalism for which the World Bank is an active player. Conscientization, for example, which would be highly desirable in Africa to enable students and teachers to collectively dissect their histories and biographies for human emancipation is excluded from that definition. It is also important to make note of the fact that the individual societies are not to associate the role of World Bank with the "exacerbated problems in education and training" who are channeled to the modernization paradigm to view the issues as the outcomes of bad planning and administration.

It is persistently argued also that things may be nasty for the poor societies now but once they "adjust" to the Western world economy, all will be fine. In other words, the current painful experience suffered by the masses in the South is an unavoidable cost for the future benefits.

> Although undoubtedly painful and politically difficult, adjustment policies will alleviate the burden of education and training on public budgets. Measures of revitalization and expansion, however, certainly require additional resources. Thus in the context of on-going austerity in Africa, resolute movement to adjustment is a necessary condition for implementing forward-looking policies on the other two dimensions. Moreover, if new policies are in fact to be implemented, management practices will need to be improved. (2)

The additional resources which are currently lacking in Africa will be provided by the World Bank for the execution of the educational plans based on the modernization viewpoint of the world. As discussed above, this world view says that the problems of education are not pedagogical but are largely administrative.

Most importantly, through structural adjustment programs, the World Bank and IMF have become increasingly powerful in shaping the direction of national development for all poor societies. As Samoff (1992) notes, this has arisen in recent years by the inability of societies concerned to support education out of their own earnings. In looking at higher education as an important sector of any education system in the South, it is always useful to take note of this fact. However, before doing so, it would be important to make brief comments also regarding the origins of the South institutions of higher learning.

2. 7 The Development of Higher Education in South Societies.

In my previous discussions, I have pointed out that the educational change efforts of the post-independence period in most South societies were a fiasco in the sense of their failure to meet the socially-defined needs of the local communities. The key to understanding this failure lies in the role of institutions of higher learning in charting the direction for change as knowledge production and dissemination centers which the lower levels of education automatically follow. The success for curricula change at these levels depended to large extent on the willingness by universities to redefine official knowledge and the legitimate ways of its acquisition as required by the changed post-independence context. The repugnance of various universities towards changes in this direction was an important factor in the perpetuation of the dependence and poverty in almost all societies.

As many writers have demonstrated, institutions of higher learning throughout the South were transplants of universities in the North to which they have continued to be wedded to this day (Ashby, 1966; Yesefu, 1973; Southhall, 1974). As seen from this point of view, these institutions were creations of colonial governments which had a particular agenda in their relationship with the peoples of the South: to civilize, instruct, legislate, discipline and occasionally war against, depending on the circumstances. But at the bottom of it lay the economic and political interests of the capitalist nations geared towards the integration of the rest of the peoples into a world economy in which the North was dominant. In order to operationalize colonial rule and to establish a modern economy, it was necessary to set up educational institutions and structures as part of the state to produce "modernisers" who ultimately took up the challenge of social transformation in their respective societies. Consequently, universities such as Makerere and Ibadan in Nigeria were created on the basis of the ideas of Enlightenment which influenced the development of higher education in the North to reproduce elite culture and marginalize the masses. Without any organic linkage with their indigenous communities ,the transplanted institutions became caricatures of their parent institutions rather than sources of original thought and creativity. This detachment of the university from the basic needs of society was to became the major focus of intense debate among governments and educators who after independence wished to reorient the institutions to serve these needs.

As seen in the earlier discussions, the manifestoes of the contending political parties for independence were directed at expanding the educational systems to meet the needs of groups which had been excluded during the era of colonial rule. To accomplish this objective would have required making direct challenges to the basic ideas on which the institutions of learning depended; a task no single governments attempted to undertake wholeheartedly primarily due the internal opposition by the privileged elite and the fact that the institutions themselves continued to be firmly tied to the North. Thus, the pyramidal nature of the educational systems remained intact as enclaves of the privileged few who had the initial contact with the colonizers. Most notably, it was the children of African kings (later demoted to chiefs) who became the first to be admitted into missionary schools to fulfill the need to create a new cadre of leaders with "modern" values and who had been socialized to despise and undermine the social basis on which various communities had survived for generations. For example, Kings' college, Budo in Uganda which fed Makerere University with students for a long time owes its origin to the ideas of Enlightenment which the colonial regime regarded as universally necessary for all humanity. It worth pointing out at the same time that just like the colonial administrative machinery, the initial institutions were dominated by males for a long time leading to the anomalous relationship between women and men in the modern economy.

It is also noteworthy, as Hoogvelt (1978) tells us, that the cash economies of the various societies were tied to men not through any genuine desire to benefit them as a social group as the proponents of the modernization paradigm maintain but simply to ease accountability and maximize exploitation in the economy that was harshly imposed.

Hence, European transplant universities were faced with an identity crisis at independence between being viable institutions of national development and serving the foreign interests for which they had been created in the first place. Two types of views can be discerned from the debates on the issue of changing the universities to suit the post-independence needs of society. The first view held by many writers believed that the universities could be reformed according to the defined interests of the post-independence governments and societies. Ashby (1966) is an excellent proponent of this school of thought who was preoccupied with the identification of the root causes for the failure of higher institutions to adapt. To him and others, the universities had failed to "adapt' to the local circumstances simply due to their choice to imitate North institutions. The important thing to underline is that such a view was based on the assumptions that the values and world views of the period of Enlightenment were universal provided that a careful "adaptation" was made by the indigenous groups.

The other school of thought views the universities to be based on alien knowledge forms and practices which have no organic link with the indigenous communities in which they were located. The proponents of this view argue for universities to become rooted in the indigenous communities as a way to respond and serve society better. In articulating that view, Ajayi (1971:4) writes the following:

> Ashby has not really studied any of the university institutions in detail in its local environment. His history of the extent to which African universities have adapted or not adapted themselves is therefore inadequate. He has selected material from official publications of the universities and from newspapers comments to show that Africa universities based on the British models have failed to adapt and that the land-grant universities should be preferred. The question as to why these attempted copies of British models have not been able to adapt themselves sufficiently to African environment remains to be answered.

For Ajayi, the African universities suffer from an "identity crisis" and suggests that is a new conception of the African university based on the traditions of its peoples themselves is necessary. From whatever point of view, one underlying factor of all institutions in Africa, Asia or any other area that was colonized is their alien character and lack of any effective linkage with the local communities in which they happened to be located. Central to this argument is the recognition that the ideological underpinnings which inform and sustain a given institution are in the final analysis determinant to its character.

If colonialism was motivated by the need to exploit and annihilate non-Western peoples as critical analysts have shown, then the institutions which owe their origin to it are fundamentally inimical to the interests of the local communities. It is crucial therefore to refuse to endorse the land-grant model which Ashby recommends as an alternative to the British universities as it was also informed and sustained by the same ideological leanings.

None other than Lord Lugard captures best the real assumptions, beliefs and inclinations that lie at the bottom of colonial education. Writing about the colonial education for the Fulani in Northern Nigeria, he has said:

> I hope that they would be taught not merely to read and write but to acquire an English Public Schoolboy's ideas of honor, loyalty, and above all responsibility. It is by such means that I hope the next generation of Fulani rulers may become efficient, reliable, and honest co-operators with the British in the administration of the Protectorate. (Cited in Mamdani, 1976:161)

We should recall that in the forgone analysis, attention was drawn to the ideological underpinnings of the "civilizing mission" of various groups of Europeans who firmly believed in their role in the world as saviors of the "natives". Returning to Brantlinger (1985), the Victorians wanted to produce the African in their own image by destroying any indigenous "superstitious customs" that were defined as being fundamentally inimical to progress. Thus, the purpose of the higher education was to produce "enlightened" gentlemen of the kind Lugard described above.

In the structures of educational systems, one can still see the influence of the beliefs and hopes of the missionary project in education in which students were physically and socially separated from their communities through the insistence on boarding schools. The purpose was to protect children from their own culture as the most important aim of curriculum development and practice in the colony. The most outstanding schools in Uganda, as elsewhere in the colonies, were founded by missionaries committed to separate their students from the communities to facilitate easy dissemination of ideas regarding "modernity" in the schools of their own creation. As said, the struggles initiated at independence but which have so far resulted in dismal failure were partly directed at reorienting educational systems to meet the needs of the masses rather than reproduce the privileged minority of the elite. The issue pertaining to the definition of knowledge in the context of the local experiences and histories has become the battle ground on which conflicting interests continually collide as the dominant local groups collaborate with external forces to undermine any radical changes in the curriculum. As shortly discussed, this convergence of interests has been probably the greatest bottleneck towards making any radical departures from the colonial curriculum which is unsuited to the needs of local development.

2.8 Institutional Building as Cultural and Political Subordination

Due to the collapse of national development efforts indicated in the previous pages, international agencies found a niche to take an active part in institution-building through the education of millions both locally and in foreign universities to take responsibility for national development in the former colonized world. Agencies such the World Bank and USAID as well as private bodies like the Rockefeller, Ford and Carnegie foundations have worked towards a common goal of filling institutions with high-level skilled labor. Contrary to what traditional analysts say regarding this involvement in education and training of foreign students, the real agenda has been to entrench knowledge forms and the legitimate ways of its acquisition in South societies through subtle mechanisms which promote the economic and political interests of North governments and societies (Arnove, 1983; Berman, 1979; Weiler, 1984; Hamnett, et. al., 1984; Olupot, 1993; Mazrui, 1979, 1992; Gran, 1984; Wierda, 1981; Toh & Farrelly, 1992). Critical analysts point to the irrelevance of content and teaching styles to the needs of the masses who are viewed from a business point view as sources of cheap labor rather than groups with legitimate interests to be addressed by the power structures. Toh & Farrelly (1992), for example, show that the world views held by foreign students in Australian agricultural colleges are similar in orientation with the ideas of the modernization paradigm responsible for the underdevelopment of South societies before and after independence. Other studies raise questions regarding the relevance of curricula designs as well as the assumed neutrality of social science for policies needed for development.

In general, critics say that economic interests of world agencies and organizations which are always at the forefront of educational provision can not be expected to lead to educational experiences to benefit the needs of the peoples of the South as claimed by the governments and the agencies themselves. Berman (1979), for example, has systematically documented the ways in which American foreign policy is closely tied with the training of foreign students in the US. The overarching aim, he convincingly argues, is related to creating a technical cadre within the South with world views and life styles that are similar to the American population. Commenting on the creation of social science departments in Africa, he writes:

> This was accomplished by placing in social science departments a foundation representative or carefully selected American or British academic charged with guiding and directing the department during its formative years, and by choosing African nationals who showed a professional promise for advanced graduate training in a limited number of elite American institutions. These social scientists, indigenous as well as expatriate, often divided their academic responsibilities between a social science department and a foundation-supported research institute linked to the department. The emphasis on the former was on teaching while the latter was primarily concerned with the application of social-science research to the alleviation of social problems. *The social-science methodologies which the Africans generally used to study problems within their societies were shaped in American institutions and, consequently, reflected dominant American ideologies..* (*Italics added*)

Arnove (1983) concurs in his eloquent exposition that foreign study socializes students into specific status groups and status interests which they need to protect upon return home. For him too, the main inclination of Ford Foundation and other agencies is to socialize students into a web of international organizations which fund and coordinate research activity globally.

> the "ego identities" of the sponsored students in time become anchored in their profession and in an international community of scholars the philanthropic foundations have been instrumental in shaping. Their behaviors and attitudes eventually are shaped by expectations as to what professionals with North American graduate degrees should know and how they should act. Rewards and gratifications as professionals derive from publishing in international or regional journals, in attending conferences forming part of their international peer network and in engaging in scholarly activities for which they have been trained. (18)

Thus, the socialization abroad places the graduates in special positions vis-a-vis the rest of society who desperately need the intellectual leadership and guidance at all levels of national development. As a result, such graduates commonly maintain a distance from the expressed social needs of their communities to which no accountability whatsoever is shown. The point to stress is that the North universities are premised on an intellectual agenda and instructional orientation which is specific to their cultural and historical contexts and supported through public funding. Hence, graduates from North universities as well as those in similar institutions at home barely possess skills and attitudes that could be used in confronting the real problems associated with the underdevelopment of the masses.

The educational reformers in the post-independence period in the South failed to come up with viable strategies to address the issues and problems of educational change according to the changed times in respective societies. Part of the reason for this failure was located in the inability by the reformers to conceive alternative world views and methods of knowledge production as demanded by the changed situation. In the field of curriculum development, Weiler (1984) too raises the following concerns:

> The field of curriculum development, to take another example, has come to loom large on the list of priorities of many developing countries for professional training. This has a great deal to do with the political determination of many Third World countries to overcome the colonial traces in the content and substance of their educational systems and to replace them with more independent, autochthonous educational message. The task is clear and important enough; what remains problematic, however, is whether graduate training in our typical North American school of education conveys the kinds of skills and conceptual categories necessary to understand, anticipate, and influence the dynamics of political process that is involved in the decolonisation of curriculum in developing countries.

Implicit in the assertions cited above is the need to indigenize academic discourse on the basis of epistemologies and philosophies known to the societies concerned without necessarily abandoning social science developed in the North. Put in a slightly different way, although it is important not to discard social science from the North, educational reformers should not lose sight of the fact that the development of such knowledge was rooted in Western consciousness to which the peoples of the South are remotely connected. Consequently, the efforts needed should be directed at generating information and knowledge which is sensitive to indigenous contexts.

In sum, two points need to be stressed. Firstly, the contest over the definition of knowledge and the ways to acquire such knowledge has seen the overwhelming ambition by the North agencies and governments to perpetuate dependence and poverty in the poor societies as institutions of higher learning have turned into what Mazrui (1984) refers to as "multinational corporations" at the service of foreign interests. As things stand at the moment, the institutions of higher learning to which a lot of "technical assistance" has been directed have remained a liability for the masses. Secondly, approaches to knowledge production and legitimation which draw on the experiences of the diverse groups and peoples of the South are the only remaining viable options towards generating information and knowledge that could be of some use for the majorities. The enormous task which continues to confront intellectuals and educational reformers is to "delink", in the sense of indigenizing academic discourse according to known philosophies and epistemologies to the masses (Alatas, 1993). As with economic "delinking", no society as yet appears to be taking serious steps in reorganizing the pedagogical process on the basis of informed local knowledge and utilizing skills and teaching styles which could promote national development in meaningful ways. In order to shed more light on this subject, is necessary to take a close look at the specific issue of research in higher education with particular reference to rural and agricultural development.

2. 9 Research Politics and Intellectual Dependence

Research as a form of teaching and a process of knowledge generation is the counterpoint upon which the domination of the South could best be seen. This is because research findings in many societies provide a viable basis for policy formulation and implementation but since poor societies have neither the funds nor the capacity to participate in research of their own, much of what is implemented is legitimated on the basis of findings which are not necessarily in their best interests. This point has been made most explicitly by Samoff (1992) who argues that the findings from research done in Africa with foreign funding are often dubious and show problematic consequences for social development. In his view, much of what the World Bank produces is motivated by the need to railroad through pre-conceived policies that do not meet the needs of the poor majorities. Among some of the problematic consequences from this research is the common tendency to distort reality through terminologies that are inappropriate such as "drop-out" in the educational literature. Viewed correctly, it does not refer to a voluntary exit by students but represents the outcomes of public policies which determine in advance the numbers of students who proceed to the next level of education. As Nkinyangi (1982) also points out in the case of Kenya, students are evicted from school by government policy which stipulates the numbers that should proceed to the next level of education. What is evident is that the victims of such evictions are largely students from disadvantaged rural backgrounds who find the educational experiences alien to their social backgrounds. Thus, the terminology of "drop-out" creeps in to mask the role of government policies which are basically hostile to the needs and interests of the masses.

But such world views never become adopted by various governments without the enthusiastic support of local intellectuals and bureaucrats funded by the agencies themselves (Odaet, 1990; Eshiwani, 1990; Galabawa, 1990; Maravanyika, 1990; Kiros, 1990; Achola, 1990; Magalula, 1990; Thelejani, 1990). Such collaboration by local elites aids the World Bank and other agencies to entrench methods of knowledge creation using research approaches which ignore the real interests of the majorities. As we be shown later, similar collaboration in research geared towards rural and agricultural development also prevents the correct identification of research problems and the application of appropriate methods of addressing the issues and problems.

A related issue of concern is the widespread insistence on the utilization of statistical data by development agencies as the basis for policy making. To begin with, poor societies barely have any reliable statistics on which any organizations or governments could hope to depend for making policies which could be credible in the eyes of the oppressed by squarely addressing problems of national development (Berry, 1984). As Waring (1988) also tells us, even the UN National System of Accounts itself often fails to take into account the numerous household chores done by women as result of the inability by economic advisors to "price" many of such jobs. Yet, in reality household tasks which include child care make significant contribution to the welfare of society in ways which the agencies are unable to grasp like in bringing up a disciplined society committed to justice and social peace. Policies based on the data available are least likely to reflect the interests of the marginalized segments of any society. Samoff (1991) also found problems of similar magnitude in a study conducted in Tanzania in which he detected a common tendency for the data to be unreliable as head teachers always miscount their own students and yet the government of Tanzania believed strongly on the value of its students statistics. Any researcher therefore needs to be sensitive to the inaccuracies in educational statistics for policy making and planning.

In many instances too, research conducted with the support of external funding, apart from overlooking some crucial problems has also a tendency to omit certain groups such as women (Rathgeber, 1988). He says that in developing technologies, university researchers seldom ask who their clientele happens to be such that in many cases, the technologies developed are not appropriate for national development. As he puts it,

> Research in science and technology is usually carried out by male researchers. Yet many of the technologies which are being developed are intended predominantly for female clientele. The reluctance of university-based researchers to consult peasant farmers may be further exacerbated by a gender bias. Researchers often do not consider whether the users of technologies which they are developing will be male or female. This oversight may be crucial since the amount of money available to female farmers for the purchase of technical inputs is likely to be less than that available to male farmers, their access to credit is likely to be non-existent or minimal and their priorities are likely to be different. (403)

Three types of problems arise from the views expressed above. First, he misses the class bias of research by complaining that male rather than female researchers develop technologies used by women. What he ignores is the point made by Mohanty (1991) to the effect that the application of middle-class consciousness by "Third World" women to the analysis of the social realities of the masses fails to generate useful information due to the common omission of cultural and historical forces which structure these realities.

Hence, there is no guarantee that university-based female researchers with middle-class consciousness would, in fact, develop technologies that are appropriate for rural women. Secondly, he has also fallen into the usual trap of dichotomizing and fragmenting the rural economy along gender lines. As Whitehead (1993) has shown, the rural economy has to be viewed in a holistic way in which roles performed by men complement rather than compete with what women do. Finally, while he draws attention to the fact that the tendency in extension work is to focus on men rather than women, he does not appear to view the issue from the perspective of the political economy of rural development. Drawing from Vincent (1982), the colonial economy in Eastern Uganda confined cotton to men but both groups participated in its production and were almost equally marginalized in that process.

Turning to the agricultural rural economy specifically, the Consultative Group in International Agricultural Research (CGIAR), set up in 1971 to coordinate agricultural research at a global level shows many of the shortcomings we have outlined above. The CGIAR, through International Service for National Agricultural Research (ISNAR), has been active in setting up national research systems along the ideas of the modernization paradigm of agricultural development. The key weakness in the method of research and training often implemented is the inability to reach and capture the real needs and problems facing farmers in agrarian settings in the South. George (1994:12) makes a moot point in this respect.

> ICRAF (*read NARO*), like the other centers in the Consultative Group on International Agricultural Research (CGIAR), is confronted by a dual problem; they have two sets of clients- farmers and National agricultural research systems (NARS). Ultimately, yes, researchers want favorable research results to be adopted by farmers. They have to be sure of the usefulness of their products and that farmers can manage the technologies they develop. Researchers will say to me that they have to be sure a product is right before they release to a farmer. But if a farmer is to be the user then it's never going to be right unless the farmer is involved in its development. So that is a catch-22 situation. The CGIAR centers have another clientele, though, and perhaps this is easier to manage-the NARS. Unfortunately, when researchers deal only with other researchers, who then emulate them, there's never any model for dealing with farmers. That is the great dilemma for CGIAR. They want to solve problems but perhaps they don't know how to get close enough to the farmers to know what those problems are.

Hemmed into the CGIAR, South societies face a dilemma in attempting to reconcile the demands of the world food regime for which they have recently been integrated while at the same time trying to draw farmers to participate in defining and tackling the problems of poverty and underdevelopment as upheld by the Uganda Government's national manifesto, for example.

These two issue deserve a little more attention. It is a common in all research for scientists to strive to win fame among their colleagues by engaging in research topics that may not necessarily be directed to the solution of socially-defined problems (Rugarcia, 1991; Turns, 1991). Although it is commonly argued that research has an active link with teaching, experience shows that this is normally not the case. In fact, as critical analysts persistently maintain, teaching as an activity by the university instructors is despised in preference for research through which academic recognition is obtained. The insistence by researchers to focus on publishing in learned journals is partly responsible for the underdevelopment of agricultural research and teaching in terms of meeting the real needs of the farmers.

Related to this issue is the observation that through the uncritical adoption of the land-grant model of agricultural development by most South universities, the tendency has been to rely on extension methods based on the top-to-bottom strategies which do not frame research questions and analyze them on a participatory and collaborative fashion as required by the critical paradigm (Brass, 1982; Fitzgerald, 1981; Biggs & Farrington, 1992; Farrington, 1988). Typically under this model, university colleges of agriculture have established farms for research and the training of students and conducting their own research. Consequently, training programs fail to provide students with skills and attitudes necessary for rural development due to the "artificiality" of the research stations.

Another important issue relates to the question of training programs which are designed with a heavy accent on the use of modern technology and the use of high-variety yielding (HVY) seeds vis-a-vis the traditional and time-tested methods of the rural farmers. In numerous official documents emanating from international agencies, one can so easily see this emphasis on the development of agriculture through the use of modern inputs such fertilizers, pesticides and herbicides which are potentially dangerous for sustained economic growth and development especially in respect to their effects on the soils and humans as well. Mooney (1983) has exposed that the indigenous seeds have been drained from the South and replaced with high-yielding varieties whose suitability for the local environments is quite dubious. Without doubt also, societies in the South today face the increasing danger of being dependent on the North not only for the seeds they previously controlled but also on the pesticides which are now under the control of the private organizations and North governments.

Thus, the tendency has been for agricultural scientists to despise and neglect indigenous knowledge and its contribution to society by using derogatory terms of reference couched in the modernization paradigm. Yet, being educated in the increasingly high-technology environment, one wonders whether the knowledge and skills often attained by students in North universities could be of any relevance for agricultural research among the poor societies that are still dependent on family labor for small-scale farming. The kinds of changes in American agricultural curriculum as described by Gelinas (1988) in which the training has moved away from general agriculture towards highly sophisticated technology raises questions of relevance in the South. It is therefore quite likely that a fairly large number of foreign students who expressed dissatisfaction with American agricultural training could be related to the this kind of training in many ways (Rohs & Newsby, 1989; Cashman & Plihal, 1987). Yet, as Caddel (1993) insists, the teaching in agricultural science that could be applicable to foreign students in America is not possible as the "state of art" requires that research and teaching be geared towards the American experience.

Compounding the problem of irrelevant research which such graduate might do, foreign students themselves may not have an interest in obtaining useful knowledge even in conditions where that may be possible simply due to the drive to acquire credentials which are needed for the prestigious positions at home (Dore, 1976; Hudson, 1992). Writing on agricultural research, Hudson (page 111) notes,

> The problem is compounded by inappropriate training of the national research staff, where the most common route is to do a Ph.D. at a Western university. This inevitably means narrowing of the field of focus, and frequently results in the student working on research topics which are dominated by the interests and research programs of the teaching university or the individual supervisor rather than problems relevant to the students own country. I firmly believe, after considerable experience in the business, that inappropriate Ph.D. studies, where the urge to acquire the magic title of "Doctor" outweighs the quest for usable knowledge or skills, is a major contribution to the poor performance of agricultural research in developing countries.

There appears to be no doubt about the students following programs of study which may not be directly related to their societies of origin (Mugasha, 1991). While that may not be a problem for those students who wish to stay back in the North, it poses problems where they return to societies of origin to assume positions of influence. It could mean the increased poverty of the masses through inappropriate advice from the research scientists leading to a chain of costly actions which the masses can ill afford.

However, although Hudson appears to have detected the problem of research from the point of view of training, he too tumbles into modernistic thinking through the uncritical endorsement of the agricultural program of University at the Wageningen

(Netherlands) cited approvingly (Wout van der Bor, Shute & Moore, 1989). Looking closely at a series of articles contained in the *North-South Partnership in Strengthening Higher Education in Agriculture* in which the participation of Wageningen was overwhelming, one finds that the analysis of issues which are addressed for agricultural development are informed by the modernization assumptions that prefer top-to-bottom approach to national development. For example, none of the articles has any respect for grassroots-based development strategies for rural development as advocated by leading development educators such as Paulo Freire.

Thus, hemmed in the global knowledge production systems as a result of the incorporation into the world economy, it would appear that societies in the South are left with little alternative but to toe the line set by the North. The only hope for genuine solution to agrarian problems facing millions would appear to lie in grassroots-based development approach. It is necessary at this point to turn attention to participatory action research (PAR) which, although still at embryonic stages in most research systems, has been able to challenge the canonical methods of knowledge production dominated by the elites especially in Latin America and Asia.

2. 1. 0 **Participatory and Transformative Research for Grassroots Development**

Drawing from the shortcomings of the traditional research methods and especially their addiction to top-to-bottom approaches which regard knowledge to be objective and neutral, participatory action research began to emerge in Latin America and Asia in particular. The inspiration for the growth of this research method could rightly be ascribed to the pioneering work by Paulo Freire (1988) who insisted that people in any society, regardless of their socio-economic status, ethnicity or gender are capable of taking an active part in the act of knowing and conducting research to generate knowledge which they view to be emancipatory. Adult educators worldwide have been concerned about the contradiction between their pedagogical styles and the saliency of this message and started almost 30 years ago to formulate ideas which culminated in the emergence of research for transformative action.

Deshler & Selener (1991) define transformative research not as a new research methodology but as a particular philosophical stance towards all research irrespective of the field of study.

> That stance towards transformative knowledge generation is one which views the focus, the process, and the outcomes of research as a means by which confrontation and action against the causes of injustice,

> exploitation, violence, and environmental degradation can occur through research process and the use of research results. (10)

As they maintain, the key tenets of transformative research are ethical, emancipatory, empowering and holistic. Being a research orientation which is geared towards those multiple objectives, it seeks to confront the positivistic research tradition which views research and knowledge generation as "objective" and "neutral" and drives a wedge between the research and the participants. The political economy of knowledge generation which informs such an orientation is based on interests by hegemonic groups to maintain a monopoly of knowledge production and utilization in order to perpetuate the oppression of the masses. In the present century, experts who control knowledge creation and dissemination are able to influence what citizens regard as "legitimate knowledge" upon which decisions which affect millions are based (Giroux, 1988; Chomsky, 1990; Altbach, 1975; Orlando Fals Borda, 1988). In North America, to draw one example, there is the powerful role the media plays in defining norms and beliefs about numerous issues such as democracy and equality for purposes of social control rather than human liberation.

Transformative action research based on the expressed needs of the masses seeks to challenge this view in order to assist educators and learners alike to recover their history and change their own reality through informed action (Orlando Fals Borda & Rahman,, 1991; Tandon, 1988; Hart, 1990). To use Freire's terminology, there is need for the oppressed groups to "name" the world in order to change it. For him it is important during the research process to dissolve the subject/object dichotomy often associated with the positivistic research which claims neutrality and objectivity. As he concludes regarding this process,

> Thus in doing research, I am educating and being educated with the people. By returning to the area in order to put in practice the results of my investigation, I am only educating and being educated; I am also researching again, because to the extent that we put into practice the plans resulting from the investigations, we change the levels of consciousness of the people, and by this change, we do research again. Thus there is a dynamic movement between researching and acting on the results of the research. (Cited in Kemmis & McTaggart, 1988:270)

Furthermore, in breaking the elite control of knowledge production and use, action researchers strive to involve the oppressed and marginalized groups in the research process from the start to its logical end as a process of empowerment and social transformation so that social reality is no longer defined for them in abstract and academic terms which are not only confusing but also reinforce the status quo. It should be noted that from time immemorial, as Ibn Khaldun's (1967) work shows, dialogic encounters have been important ways in which humanity has accumulated it wisdom about the environment and the future visions of its existence. In many civilizations today "knowledge experts" educated and certified in elite schools have usurped this role of defining what passes as usable knowledge from indigenous communities.

At the grassroots level, participatory action researchers have been closely linked with social movements that have organized to challenge the different forms of injustices and environmental abuse which has accompanied the unlimited accumulation of capital on a world scale. Orlando Fals Borda (1988) also credits this research strategy in his insistence that social movements are uniquely placed to mobilize the oppressed in the struggle to challenge social, economic and political structures of domination which are mediated by the reformist state. In several states, due to their close linkage with international finance capital, the state has indeed become a liability that suppresses and silences oppositional discourse whether from the masses or from the dissenting segments of the dominant elite.

Thus, action researchers have for example, linked with environmental social movements in the humane struggle to protect and counteract the indiscriminate destruction of the exhaustible world's resources especially as seen in the actions of transnational corporations. Also, as Tandon (1988) describes, the social movements that protect women rights have found it necessary to expose the exploitation that they suffer through the injustices unleashed to them by pernicious state policies often charted in collaboration with the interests of finance capital based in the North. Even the workers' social movements have found the work of action researchers quite supportive in their endeavor to struggle against the marginalization meted out to them by various policies and actions by the authorities. Workers in the non-formal or informal economic activities have in particular been singled out for exploitation by a world economic system geared towards massive accumulation of profit per se with little regard for the welfare of groups that are adversely affected by the process.

As earlier stated, George (1993) raised a valid criticism in regard to the CGIAR's detachment from the rural farmers' needs. Drawing from her insights, participatory action research is a promising alternative for the affected societies in the struggle to make various national agricultural research systems accountable for their actions. In particular, as Sousa-Silva's seminal study (1992) shows, there is an urgent need for poor societies in the South to conduct futures research as a strategy to counteract the imminent onslaught by the "biotechnology revolution" which, like the one before it, has already caused great havoc on the environment everywhere in the world and also deprived many of their means of social existence. For action researchers to expose the dangers of imported technologies in farming not only makes the present conditions better but it is also to preserve our resources for the future generations.

In short, participatory action research shows a big potential to enhance our understanding of the intricate issues and problems on agricultural modernization and in other social sectors as well. The colonial top-to-bottom research model which has become entrenched in the South educational systems hides many important dimensions of social change but also leaves the status quo in which "knowledge experts" dictate terms of research on the masses basically intact. Closely connected with participatory action research are issues on the role of indigenous knowledge systems in generating useful data upon which those with a commitment to improve the living conditions of the marginalized could depend to save the environment and promote social justice on a global scale. We need therefore to make a few comments on the promises and lessons that the indigenous knowledge systems could have for those committed to such interests.

2. 1.1 **Indigenous Knowledge Systems and Oppositional Discourses**

In the recent past, the number of researchers interested in the role of indigenous knowledge and national development has grown considerably (Richards, 1979; Bebbington, 1991; Altieri, 1989; Thrupp, 1989; McCorkle, 1989; Gomez-Pompa & Kaus, 1992; Manzur & 'Tunji Titilola; George, 1976). The unifying theme in their studies is the concern to recover and bring into the center-stage the knowledge which indigenous people have accumulated over generations regarding agricultural theory and practices which have enabled the masses to cope with vagaries of climatic changes and to protect and conserve their environments successfully. Participatory action research, due to its emphasis in ethics, empowerment and emancipation relates quite well with studies which are committed to redeploy traditional knowledge as a form of alternative knowledge to address the various problems of national and global development. Although still marginalized, indigenous knowledge systems have began to capture the attention of individuals and organizations committed to creating an atmosphere for a just and sustainable development.

The rural masses in the modernization paradigm have often been portrayed as "primitive" or accused of failing to adopt new technologies because of their "stupidity" that is said to wed them into perpetual absolute poverty. Such analyses and attitudes are often held by modern scientists who view indigenous peoples with great disdain (Warren, 1989; Slikkerveer, 1989; Jiggins, 1989; Gosset, 1965). There is need in particular to single out the thesis advanced by Rogers (1983) who has articulated perhaps the most well known model of "diffusion of innovations" where "progressive farmers" are equated with the with the use of modern technology while the rest are regarded as slow learners or adopters. From exemplary studies on the subject (Thrupp, 1989), farmers do not fail to "adopt" technologies due to their "stupidity" yet there are objective conditions which prevent them from doing so and which are largely ignored by mainstream scientists in their assessment of rural development. Likewise, George (1976) shows that failures to "adopt" new technologies is commonly associated not with "stupidity" but is largely a manifestation of poverty, social inequities, and inaccessibility to essential resources or could simply be due the inferiority of the technologies offered by scientists.

The intellectual arrogance promoted under positivist social science methods of inquiry prevents many from acknowledging the sophisticated understanding that indigenous peoples have for the multiple problems of their existence. In several analyzes, the habitat from which indigenous societies get food, medicines as well as spiritual inspiration is dubbed "bush" as a result of the training associated Northern agricultural systems based on a single crop cultivation and which are also geared towards meeting the needs of the "market" rather than the people (Hobblink, 1992; Gomez-Pompa & Kaus, 1992). As a result, the intimate knowledge which the indigenous masses possess on matters of environmental conservation in farming is excluded from policy making and implementation.

In a few cases where recognition is given to indigenous knowledge by North governments and their agencies, this is often done opportunistically to promote the interests of the North. A case in point is Uganda where the World Bank (1993), eager to make drastic cuts in social expenditure by the state, has produced a policy document which endorses traditional healing by the rural masses. Curiously, in the same document, the same healers who are also farmers are pressured to adopt modern technology and farming practices. The double standards adopted by leading agencies are motivated by the need to promote profit accumulation which has historically benefited the North while marginalizing the rest of the world. Thus, indigenous knowledge which is fully embraced by participatory action researchers provide a promising future by permitting the masses to define reality according to their perceptions and to act in ways that lead to societal transformation. This approach also allows for cultural enjoyment which conventional development "experts" have persistently ignored in the discussions on development.

In sum, institutions of higher learning in the North and South need to pay close attention to the methods of research which put the masses as the center of their interests as a viable strategy to overcome oppression and marginalization. This means that scientists need to change their perception towards ignorance by allowing it to be a genuine point from which to move closer to understand issues and problems which besiege millions on the planet. Before winding up this literature review, is important to also briefly comment on educational theories of resistance which have similar interests with participatory action research and indigenous knowledge in the commitment towards the creation of a just and humane world for all.

2. 1.2 **Theories of Reproduction and Resistance in Education**

Radical studies in education which propose alternative functions and purposes of mainstream education have gained currency especially in North America. The pioneering work of Bowles & Gintis (1976) is particularly instructive in opening the way for educators to view schools as instruments that reproduce the social relations of production in which children from disadvantaged backgrounds are prepared to take up jobs that correspond with their social status in society. For the first time, schooling was viewed as being a promoter of social inequality and injustice rooted in the social order unlike traditional analyzes which were based on the liberal ideas that view schools as useful for generating labor skills needed in the economy. However, one major problem with this work was the little sensitivity shown to the complex way in which schools actually operate on day-to-day basis through negotiation and contestation rather than conformity. To assert that schools reproduce the social relations of production was not enough as it is necessary also to go beyond to explore the various ways in which schools in reality perform that function. Secondly, we need to note also the flaw in the assumption made to the effect that students were already "predetermined" prior to arrival at the school and that they passively accepted what school taught them. As subsequent analysts were to show, reproduction theorists seriously under-theorized the complex issues surrounding class cultures and the dynamics of working class and gender resistance in and outside schools (Apple, 1982; Bernstein, 1977). Thus, they were unable to decipher the coexistence between reproduction, contestation and accommodation which later theorists of critical pedagogy were able to fulfill.

In elaborating the notions of resistance and counter hegemony in a liberatory framework, Giroux (1992) has argued that the pedagogical processes not only produce or create structures of domination, they also serve as sites of resistance by offering opportunities for creating public spheres in which people can believe that they can make a difference in changing their condition by establishing a more humane, compassionate and just order. For him educators as part of cultural workers should be viewed as playing a crucial role on developing critical awareness that opposes the institutions and structures of domination that inhere in our societies today. Hence, as "transformative intellectuals", Giroux (1988), looks at pedagogy and curriculum in terms of assisting students to collectively interrogate the beliefs and values which they bring to learning sites as well as to examine critically the dominant assumptions that underlie their lives. Writing on a wide array of topics and issues, he singled himself to be committed to an education that challenges the technocratic functional assumptions which dominate educational discourse but with a view to develop a language of critique and possibility. Critics of his works say that although there could be social truths in his educational theory, the pragmatic reality shows a lack of corresponding political project to effect the changes proposed therein. For Ugbor (1991), transformative education is simply "an article in faith".

However, what critical educators say regarding the role of education in human emancipation makes sense in the context of colonized societies. The colonial literacy model in Africa, for example, was not designed to promote critical thinking but rather was geared to "literacy for stupidification" as Macedo (1993) puts it. What is needed is an education that is firmly anchored on the traditions and cultures of the oppressed people and which should provide a primary space for meaningful understanding of human experience (Okot p'Bitek, 1966; Ngugi Wa Thiongo, 1986). Any imposed educational system is not just irrelevant for human dignity but is also particularly alienating as the experience of former colonies shows. Thus, several studies have argued in favor of basing school curriculum on the traditions of the peoples and to give voice to forms of knowledge which have been subjugated and silenced by the dominant forces. The indigenous knowledge systems which play a crucial role in national development have been delegitimated by the official curriculum.

In sum, critical educators stress the participation of the oppressed groups in curriculum development as a strategy to include the "subjugated knowledges" in the struggle for social justice and human emancipation. They refuse to see schools as playing a neutral role in the preparation of labor needed in the capitalist society but regard them as sites where students resist and negotiate with the dominant ideas and beliefs of the hidden curriculum. For them, the role of the educator is to create opportunities under which students could critically question all the things they have been made to believe within and outside schools so that the injustices which are rooted in the social order could be exposed. Thus, the students should be brought up to question the relationship between race and the economy in which whites are privileged while people of color are marginalized. Similarly, there is need for students to raise questions related to why the masses have been excluded from schooling and the benefits reserved for the educated.

Furthermore, there is need to look at the connection between gender and poverty where women as a social group are marginalized in a male-dominated economy. All these issue are disregarded by the structural functional curriculum geared towards legitimation of the social order.

CHAPTER THREE

RESEARCH METHODOLOGY

3. 1 Introduction

In this chapter, the methods used to collect the data for the study are presented. The major focus of the chapter is to undertake a critical analysis of the empirical data through evaluative criteria drawn from the critical/dependency paradigm. The methods of data gathering as well as data analysis which are described below are largely determined by the qualitative nature of the study that used interviews as well as documentary analysis as the two main sources of the data. The pages which follow show a detailed description of the locale of the study, characteristics of the populations, the procedures for sampling for interviews and documents, data gathering techniques, ethical issues , data analysis and the research difficulties encountered during the process.

In brief, as a qualitative study, the major focus was on seeking out and understanding the views of students and their instructors in the science agricultural program at Makerere University as well those held by governmental bureaucrats and politicians on the theory and practice of rural development in South contexts in general and Uganda in particular. The interview technique was deemed the most appropriate way to gather quality data largely because of the opportunities offered to conduct face-to-face communication as required and determined jointly by the interviewees and the interviewer. As a result the data collected could be verified by groups and individuals on the spot. The research participants have also another chance to verify the data reported in this study. The group interviews among students and the bureaucrats were particularly suitable for this method which allowed them to correct or verify the information they gave and to make any additions and deletions as they found necessary. Thus, the interview technique was adopted due to its power to provide for a consensual social validation of knowledge which cannot be achieved through individual-based methods such as survey questionnaires. Aside from this, the qualitative methodology enhanced accountability to the interviewees in the sense of allowing their own views, expressed in words known to them about their world, to be gathered and represented in the writing of the final report. Serious consideration was also given to the need to avoid imposing my own categories of thought or themes on the interviewees. This was extremely essential in avoiding turning the participants into mere research objects by ignoring their vested interests in this kind of study.

In any bureaucratic organization there are normally several documents which provide employees, policy makers and administrators and with a basic understanding of policy guidelines and modes of action for different actors in the organization. There was need to gather more data through a close scrutiny of the various documents which speak on national and rural development policies and the role which education is expected to play in that context. As will be shown shortly, not all documents which contain information on national development and education in Uganda in particular could be scrutinized and it was therefore necessary to sample a few of them which could generate quality data. The documentary and interview data was then synthesized to enrich the overall information available to the study. As in the interviews, the focus on documentary information was closely related to the competing paradigms in national and rural development in both the university documents as well those available at the national and international levels. Before focusing on the research questions in the study, it would be important to begin with a brief sketch on the locale of the study.

3. 2 **Locale of the Study**

Much of the study was conducted in Makerere University in Uganda. This institution was selected largely due to the fact that for several years , it has remained the only institution of higher learning in Uganda which educates and trains high-level personnel whose influence on public policies has tremendous impact on the lives of millions. Initially operated as a technical institute in 1922, it progressed to become a constituent college of University of London in 1948 together with Ibadan in Nigeria but without any local autonomy (Ashby, 1966; Yesefu, 1973; Southall, 1974). It is also important at this point to highlight that for quite an extended period of time Makerere University was the sole provider of high-level human power to Tanganyika (now Tanzania after merger with Zanzibar) and Kenya. Julius Nyerere who became the political philosopher and leader of the independent movement in Tanzania was among its gifted students. This historic background together with the central role it has played in manpower development in East Africa makes it a very significant institution for research.

Quite recently, two more universities have sprung up in Uganda to conduct studies in higher education but none in agricultural sciences. Mbarara University of Science and Technology is focused on the training of doctors, science teachers and environmentalists but its enrollment is still negligible in comparison with Makerere. This is partly due to the inability of the NRM government to generate funds internally to finance its development. According to the Commonwealth Universities Year book

(1993), the new Mbarara university enrolled a total of 184 students in 1991 as compared with Makerere's 6, 819. As expected, the male enrollment far exceeded that by females in both institutions. Mbarara had only 43 women while Makerere University enrolled 1583 women that academic year. The breakdown of the enrollment in various faculties, schools and institutes at Makerere still reveals the colonial legacy in which more students are enrolled in the Arts than Science. The distribution of the enrollments was as follows: Arts 1200, Social Science 1250, Education 1079, Commerce 283, Fine Art 150, law 172, Library Science 100, Technology 145, Medicine 598, Science 1169, Veterinary Medicine 187 and Agriculture with 446 students. In appendix B 1 details of students enrolled and graduating in various programs for the years 1987-1992 is shown. Also, the appendix F 1 provides a general picture of the total establishment in the University consisting of instructors and professional positions only.

Administratively, Faculties are headed by Deans while schools and institutes are commonly headed by Directors all of whom are responsible to the Vice-Chancellor as the chief academic and administrator. Through the University Council, the University is linked with the Government of Uganda responsible for funding all programs in the University although in recent times a small number of privately-sponsored students have also been admitted. Also, all academic matters or issues pertaining to curricula are handled by Senate constituted by departmental chairs, deans and top administrators. Quite recently too, a small change has occurred in which students' representatives have been invited to various administrative and academic organs of the University except the Senate.

In 1990, some private individuals founded the Islamic University in Uganda located in the Eastern town of Mbale to offer degree programs in Education and Islamic and Arabic studies. So far, it would appear that the education programs currently offered in this institution bear a close resemblance with the programs at Makerere University. Part of the reason could be that many of its instructors are either shared illegally or were formally at Makerere but chose to migrate eastwards in search of better conditions of service. The Islamic University had a small enrollment of 353 students (275 men and 78 women) out of which 41 come from Kenya and Tanzania and other African states. This University also enrolled 23 postgraduate students within the total number cited above.

In sum, Makerere University is still the largest and most diversified institution in Uganda responsible for the training of high-level manpower for various development activities in this society. This monopoly in production of people of high caliber began with colonialism as stated before but has persisted to this day. This fact alone makes Makerere University a significant case-study for understanding the role of knowledge production and dissemination into the national development framework. The Faculty of Agriculture & Forestry as it is known today was among the first to offer courses related to the national development of Uganda from 1922 when it first opened. The Faculties of Medicine, Veterinary and Education were the other three with a comparable status which have grown together with Agriculture into the post-independence era. Although these Faculties (MAVE) were initially intended for only small enrolments of women and men, this has been defeated in recent times by the mounting social pressure and demand leading to grossly over-blown enrollments for all programs. Over the years, there has also been a marked increase of departments together with rapid recruitment of academic staff despite attrition occurring through the "brain drain" to neighboring areas as well as to the North where most instructors obtained their higher education.

The Faculty of Agriculture originally had programs in Crop Science, Animal Science and a small program in Rural Economy and Extension but has recently grown to include departments of Food Science and Technology, Agricultural Education & Extension, Agricultural Engineering, Forestry and the supporting Soil Science. A total of eight departments exist today but the recent ones have emerged through financial and managerial assistance of the United States Agency for International Development (USAID) which has also funded the Manpower for Agricultural Development (MFAD) program since mid-1980s. The impact of this program is noticeable in the training of a large number of teaching staff in land-grant universities in Unites states with Ohio State University as the principal contractor. Through MFAD program the Faculty of Agriculture was able to obtain up to twelve Ph.D. holders plus a number of Masters degree holders trained locally. Apart from numerous refresher courses and workshops, the Ministry of Agriculture, Animal industry and Forestry (MAIAF) located in Entebbe (Uganda's colonial capital), also trained about the same number of Ph.Ds. and many masters degrees under the same program. As stated above, the majority of instructors were trained abroad in English-speaking countries such as Australia, Britain, Canada, USA and a negligible number from the former state socialist countries such as the Soviet Union.

It is important to note also that the Agricultural Engineering option is taught jointly with Faculty of Technology and enrolls only about fifteen students each year. This is the same case with students admitted to Food Science who normally do not exceed 15 presumably due to scarcity of equipment and teachers. This leaves the bulk of the students specializing in Crop and Animal Science, Agricultural Economics and Agricultural Education. Although part of the faculty, the Forestry program in reality stands on its own in terms of program administration as well as teaching although its students do take some courses together with other students in the Faculty of Agriculture. The various degree options will be given a detailed treatment in chapters four, five ans six on the data analysis. However, it is necessary to note that the various options in the Faculty are crucial in providing Uganda with personnel who ultimately occupy important positions in government and other organizations in which decisions which affect the majority of the population are made. Also, the academic members of the Faculty are viewed nationally as critical sources of support for national research and consultancy services throughout Uganda.

3. 3 **Research Questions**

Before attending to the details of sampling, it is useful to look at key research questions which motivated the formulation of the research design.

Question 1: What views on issues and problems on national and global development, and in particular rural development, are held by a sample of instructors, final year students enrolled in the Bachelor of Science (Agriculture & Forestry) program at Makerere as well as government bureaucrats in Uganda? This question seeks to establish the relative dominance of approaches to rural development in agricultural program at Makerere University between the modernization and the critical paradigm. Put differently, to what extent has the older modernization paradigm been eroded in influencing program development in agriculture at Makerere University?

Question 2: How do the views expressed by different groups relate to the competing paradigms in development ? This is a straightforward categorization of the expressed views between the two paradigms. The themes which emerge help to illuminate the relative presence of the paradigms in the thinking of the interviewees. Implied also is the extent to which there exists a relationship, similarity or dissimilarity between what different groups say on rural development.

Question 3: What curriculum content and pedagogical processes are employed by instructors in the teaching of courses in the agricultural program at Makerere University ? The views expressed against this query are best tallied against what documents say regarding curriculum content and pedagogical styles. As chapter four and five will show, the data from documents was obtained from students' notes, continuous assessment questions, final year examination questions, course outlines, textbooks and other forms of teaching materials. Again this is done with the intention of teasing out the more dominant paradigm in the program.

Question 4: How relevant are such curriculum content and pedagogical processes for developing skills, values and knowledge which will equip the graduates for effective service in agricultural development in Southern societies such as Uganda ? This question on curriculum relevance is concerned with ascertaining the perceptions held by students, instructors and bureaucrats towards the basic needs of the rural poor. In short, while the modernization paradigm promotes elitist attitudes and styles of work in development, the critical paradigm is committed towards the development of empathy, compassion and solidarity with the poor in challenging the economic and political structures of oppression. As such, the critical paradigm is based on the assumptions that the rural masses need to be empowered by "naming the word and the world", to borrow from as Paulo Freire as perhaps the leading grassroots-based development advocate.

Question 5: What role do students envisage they could play following graduation with the Bachelor Science (Agriculture & Forestry) degree at Makerere? Since students are likely to play an important role in the future of Uganda in particular, it would be important to gauge their feelings about the adequacy of the training program for national and rural development. The critical assumption made is that these feelings are greatly influenced by their educational experiences in the four years of the study program. Put slightly differently, the more dominant paradigm in the agricultural program is instrumental in shaping their views regarding future assignments in the rural agricultural sector. Are their aspirations more tilted towards working in the "modern sector" or with the rural masses in development?

Question 6: What views are held by key agriculturists and policy makers in the Ugandan bureaucracy on the major issues and problems of national and global development, especially with regard to rural development? Although stated separately, the question is similar to the first question above. What needs to be emphasized is that bureaucrats are already in positions of power and their influence on policy is considerable. It would be important therefore to gauge their perceptions on various issues on national and global development. The idea is to relate their views to the competing paradigms in development.

Question 7: How these views on national development relate to the competing paradigms in development ? The main focus again is to relate the views expressed to the competing paradigms of development but in the context of poverty and underdevelopment in South societies.

Question 8: What views are held by key agriculturists and policy makers in the Ugandan bureaucracy on the relevance and effectiveness of the degree program at Makerere University. Simply put, it would be useful to solicit the kind of changes which officials in Uganda who are responsible for policy making and implementation feel to be the kind of changes necessary to improve the conditions of the rural masses in Uganda. As stated earlier, their paradigmatic preference is assumed to be influenced by their perceptions on the problems of agricultural development and social change in general.

Question 9: What external influences might have shaped the Bachelor of Science (Agriculture & Forestry) program at Makerere University and what implications would this hold for the relevance of the program to the needs of agricultural and rural development in Uganda ? The literature on the role of international agencies in rural development has accumulated over the years. At the present time, United States Agency for International Development (USAID) alongside the World Bank and Rockefeller Foundations are deeply involved in agricultural and curriculum development in Uganda. The MFAD program which I have already alluded to above has been instrumental in restocking the Faculty of Agriculture at Makerere with the necessary personnel for national development. This question seeks to find out the views held by different groups on the role of such organizations in national and global development.

Question 10:

What research orientation (s) is/are promoted by the Faculty of Agriculture at Makerere University and how is/are these related to the competing paradigms of development ? In the modernization paradigm, knowledge is defined as being neutral and objective. As a result of this orientation, proponents of the modernization paradigm prefer to conduct research according methods and styles in which the researcher is solely responsible for the entire research process. That is, the goals of research and the methods employed are largely determined by the scientific community with no interference from any quarter whatsoever. Applied to teaching, students as future scientists are drilled in the "scientific method" to become experts. The critical perspective, on the other hand, argue that knowledge exists in the social reality of any community and needs to be produced and disseminated on grassroots-based principles. Consequently, they embrace a research orientation which draws the sectors of the population affected by the problems into the research process as partners with the scientists. Hence, the research and knowledge generated in this process by necessity should come from community participation with the researchers. How students, instructors and bureaucrats related to these views on research was an important consideration.

3. 4 Sampling for Interviews

In the year 1989/90, the faculty of Agriculture and Forestry enrolled about 120 students in various options of study. Given the focus of in-depth interviewing, it was necessary to select a sample of students from this number to participate in the study. Likewise, a sample of instructors and government bureaucrats were selected to take part in the interviews. In the student sample, although students in all Bachelor of Science (Agriculture & Forestry) programs were targeted in the study, special emphasis was made to include those enrolled in Agricultural Economics, Agricultural extension and Education and Crop Science as the most relevant groups for the study. The overriding concern in the sampling was not to miss the views from the students in these option particularly due to the fact that they had covered courses on national and rural development. Looking at the course structure (see appendices in E), such courses included Agricultural Development (RE 301), Agricultural Marketing (RE 302), Resource Management (RE 303) and Agricultural Cooperatives and Credit (RE 304) done in the third year for except for students enrolled in Agricultural Engineering, Food Science and Forestry. In the fourth year, courses which had a direct relevance to the study were mainly in the two options of Agricultural Economics and Extension and such as Rural Development and Extension (RE 401). It was also possible to study the lecture notes, course outlines and examination questions from the respondents. As participants in courses which directly taught development issues, the paradigmatic emphasis of the program could more easily be ascertained from them. Also, the students who had been members of the Makerere University Agricultural Students Association were particularly targeted (all participated in the study) due to their intimate knowledge about the agricultural program through their experience with the Faculty administration in the University.

This purposive sampling was done in order to gather quality data which was though to come from certain select groups of persons. A list of students enrolled in various options was obtained and the members of the executive committee of the association named above were the first to be approached. With their assistance, a total of 45 students were assembled on June 17, 1993 from various options for briefing on the details of the study in which potential respondents were scheduled for the interview. Another five students turned up later but declined to participate. Out of 45 students who intially agreed to participate in the interviews, a total of 22 were finally interviewed broken up as follows: 5 from Agricultural Economics, 6 from Agricultural Extension &

Education, 5 from Crop Science, 2 from Forestry, 2 from Food Science and Technology and 2 from Animal Science. The turn up from the new department of Agricultural Extension was particularly impressive in which only 3 out of 9 enrolled failed to show up. As reported in the methodological difficulties, the interviews were conducted during the closure of the University which partly explains the failure by many to show up as scheduled although the fear of possible reprisals from the authorities as reported in section 3.6 on ethical and validity considerations of this chapter was quite evident. Among the total interviewed, four were women (1 from Crop Science, 2 from Agricultural economics and 1 from Forestry) out of 17 women enrolled in the program that year. Their inclusion as a social group was important due to the recognition of the increased attention which scholars have recently given to women in development.

Regarding instructors, a total of eleven were interviewed from the departments of Agricultural Economics, Agricultural extension & Education, Animal Science, Crop Science, Forestry and Food Science and Technology. Only two women from the departments of Agricultural Economics and Food Science were available for the interviews. The dean and associate dean, the chairs of the departments of Agricultural Economics, department of Agricultural Education and Extension and Department of Forestry were crucial individuals who took part in the study. The distribution was as follows: Agricultural Education and Extension 2; Agricultural Economics 2; Animals Science 4; Forestry 2; and I from Crop Science. The sampling for instructors was also purposive and was directed at those departments which run programs related to the theme of the study as well as academic leaders and administrators closely connected with program development and implementation in respective departments. Thus, the participation by instructors and the Chairs in the Agricultural Economics and Extension was particularly valued as they teach courses such as Rural Development and Extension with a direct relevance to the theme of the study as reported above. The only woman Chair interviewed also taught courses in Agricultural Economics and Development hence, benefiting the study from that linkage of womanhood and academic leadership in rural development. In addition to purposive sampling, instructors who agreed to participate in the study were also requested to name their colleagues who they thought would be useful sources of additional information for the study.

The general strategy used was to approach individuals to explain the nature of the research and solicit their views regarding participation in the study. A total of 24 instructors were approached in this way out of which 11 agreed to participate. Many instructors either declined to take part in the study or simply failed to honor the schedules on several occasions. For nearly all departments except Agricultural Economics and

Extension (both of which had few instructors as most had either just returned or were still finishing studies abroad), the instructors did not believe that as "technical people", a study on development paradigms was related to their work. This provides an insight to the difficulties confronted regarding scheduling for group interviews.

Little choice was available for the selection of government bureaucrats and policy makers partly due to the specificity of their work schedules as outlined in the official guidelines. In Uganda, the section on Training and Information located in the Ministry of Agriculture, Animal Industry & Forestry is responsible for coordinating agricultural education and training activities. Headed by the Commissioner of Training and Information, this section is responsible for all matters pertaining to agricultural curriculum development, implementation, evaluation, information dissemination and graduate employment. It coordinates all teaching activities in agricultural colleges and farm institutes throughout Uganda and works closely with the Faculty of Agriculture in the development and execution of its roles. In addition, the officials in the section work closely with the Uganda Public Service Commission as the main employer of university graduates from all fields. There could not have been any group of people to provide the data for the study than the panel of three drawn from this department. Included in the study also was the Minister of Agriculture, Animal Industry and Fisheries (MAAIF) who had also earned an agricultural science degree from Makerere University in 1970s. In addition, she had also been intimately connected with the affairs of the Ministry for over eight years since NRM came to power.

3. 5 **Gaining Access to Interviewees and Documents**

Gaining access to participants and documents started in university of Alberta during the preparation of the research proposal which was accepted by the Faculty of Graduate Studies and Research. In Uganda, the first step taken was to accomplish all legal procedures for conducting research as demanded by the National Research Council in Kampala. This was done with the help of letters of support procured at Alberta before departure for Uganda. The outcome of this step were three letters of permission addressed to the Dean, Faculty of Agriculture & Forestry at Makerere, the District Executive Secretary in Kampala and the District Executive Secretary at Mpigi where the Ministry of Agriculture, Animal Industry & Forestry are located. Appended in I are letters of support which were used to gain access to the various respondents (see appendices F).

These documents were crucial sources of support in making the initial contact with the Dean at the Faculty of Agriculture as well as to the government officials at the Ministry headquarters to familiarize them with the intentions of the research and to gain their support. Following further permission by the Associate Dean at the Faculty of Agriculture to proceed with the research, I made contact with the former President of the Agricultural Students Association who happened to be among the cohort. This was a decisive step at a time when most students had just completed their final examinations and were packing their luggage to depart for their homes. As a result, a general meeting with potential interviewees was held in June 17, 1993 to explain the purpose of the study, respond to students' concerns and to invite volunteers for the study. At this same meeting, fixtures and places for the interviews were made for willing participants.

3. 6 Considerations on Ethics and Validity

During the first meeting with all potential student participants, it was made clear that anonymity would be maintained for those who volunteered to participate in the study. This was an important issue as many students expressed fears for possible retaliation from the authorities in ways that may jeopardize their future careers once certain information was associated with any name. At a time when students awaited the outcomes of their final examinations, these concerns were treated with special care. As the student leader put it:

> For example, when we were coming here in the first year, there was an article which appeared in the newspaper. The paper was complaining that agricultural students are better than farmers. No, that farmers are better than agricultural students. So instead of lecturers coming to tell us "you see what is happening?"... I remember when they called us they were complaining that "why can't you come and talk to us instead of writing in the paper?".... There is need to accept that training is inadequate.

Similarly, instructors and administrators expressed concern for anonymity as a measure to protect their names from being associated with the views in this report. These requests have been honored in the study.

I do not also limit the ethical considerations to the protection of the individuals and myself. In the initial meetings with the interviewees, a promise was made to avail the report for public consumption so that respondents could once again verify the data which they gave and raise any issues of concern thereafter. Possibilities to disseminate the findings in strategically like placing copies of the report in Makerere University library shall be explored to maximize the dissemination of the findings. It has also been my intention to follow up the issues raised in this report through seminars and workshops where the participation of the persons who gave their views could be solicited. Any other members of the public who may show interest are to be involved in the proposed dialogues.

In order to understand the importance of the findings in this study, it is useful to know how qualitative researchers think about validity. When viewed in positivist and instrumental terms, the procedures undertaken by the researcher become dominant in the determination of validity. Hence, the validity of the results and interpretations provided are determined by the techniques employed in the study. A realist conception of validity, however, adopted here sees the validity of an account as inherent, not in the procedures used to produce and validate it, but in its relationship to those things that it is intended to be an account *of* (Hammersley, 1992; House, 1991; Maxwell, 1990, Norris, 1983). This conception of validity stresses that *understanding* is a more fundamental concept for qualitative research than validity. As a result, what a group of students or instructors say in relation to a particular issue has to be understood in their social context or to put it in a slightly differently way, the social reality of the community is the measure used in interpreting the messages coming from the participants.

This study therefore avoids using typologies developed from experimental and qualitative research which treat validity and being more important than *understanding* as clarified. As Maxwell (1992) has put it,

> .. in explicating the concept of validity in qualitative research, I want to avoid applying or adapting the typologies developed for experimental and quantitative research... These typologies cannot be applied directly to qualitative research without distorting what qualitative researchers actually do in addressing validity issues, and tautologically confirming quantitative researchers' critiques.

The accounts given here are derived from the experiences of students, instructors and government trainers as participants in the Makerere University agricultural science program interpreted from the perspective of development paradigms. Thus, words spoken or written are analyzed on the basis of the development paradigms not in an abstract way but in close relation to the social reality of Uganda. However, it is important to note that participants may be unaware of their feelings or views or may fail to recall their feelings and sometimes distort their own views. It is the duty of the qualitative researcher to *construct* meanings on the basis of the accounts given and from other evidence gained through other means such as observation like in the case of Makerere University Farm or from the wider social reality as well as the curriculum and instruction as experienced by the students. These multiple sources of data have been useful in enriching the interpretations made on the agricultural curriculum.

Furthermore, in the case of students and instructors who were not included in the sample, their absence does not necessarily pose problems of validity in terms of the question of paradigmatic orientations. The data obtained from significant influences on students such as curriculum content, formal research experience and pedagogy provide indicators of the paradigms to which all students have been exposed. Likewise, the overall paradigmatic orientation of the instructors can also be revealed by their curriculum emphasis, examination content and graduate advising. Last but not least, students or instructors in Makerere institutional context who are committed to critical perspectives are usually not hesitant in expressing their views publicly.

3. 7 Data Gathering

The data for the study was gathered between the month of June and October 1993 in which I lived in Makerere University itself. Ideally in all the interviews, the main approach was to gather information through group participation. The rationale underlying this method was to allow people to speak to each other and verify the information which they gave on spot. The main advantage of this research approach was for the respondents to hear and cross-examine each other's views and to raise any queries which could help clarify any issues. Verification and validation of the data gathered was done on spot through the replay of the taped messages and in cases where interviews were untaped, I went through the notes step by step with the respondents to cross-check or verify the data given. For students, 4 groups made up of 2-4 students were constituted by them. This was strategic in allowing the respondents full freedom to set up groups according to their interests and needs and to maximize the quality of the data gathered. Also, just as they had freedom not to participate in the study, they were also free to appear on individual basis as some did.

The main reason for taking these precautionary measures was to allow only students who freely wanted to take part to give the best possible picture of the agricultural program which they had just completed. In this way the quality of the information given was enhanced. Furthermore, all participants had a choice to make between being taped or simply un-taped. The choice given was to allow the students to speak frankly without fear of recrimination from any quarter so that valid data could be gathered. During the interview notes were simultaneously written on salient points that emerged in that process. In many cases, messages from "body language" which could not be captured by tape recording were also noted. The same procedure was applied for a group of three agricultural training officers and the politician but in both cases the messages were tape-recorded. The busy schedules of the officials, however, prevented any re-visits which would have been helpful for elaboration of the data.

The "group method" failed to work for the instructors for a number of reasons. Firstly, their conflicting schedules of work did not allow for any groups to be constituted even where this could be feasible. In some cases it took several months waiting for instructors to return to campus from assignments away from the university and sometimes out of Uganda. Secondly, the instructors themselves preferred to be interviewed on an individual basis rather than as group. Some instructors were either unwilling to be taped or simply declined to participate in the study on the grounds that the subject for research was irrelevant for their expertise.

In the case of documents, the initial sampling was done during the proposal writing to be confirmed later through talking to instructors, students and bureaucrats. Through this method, it became possible to stockpile course outlines, book lists, past examination papers, students' course work notes, final research reports and theses, pass lists, educational policy documents, agricultural policy studies and national development plans and strategies. In cases where the documents had a restricted circulation, relevant parts were photocopied where possible for later analysis. In some cases, however, where photocopying facilities were lacking as it is commonly the case in Uganda, documents were copied into notebooks word for word. This was done mainly in the months of August and September 1993.

3. 8 The Analysis of Data

The analysis of the interview data effectively began in Alberta with the transcription of the taped data into a computer. The various responses to each question by different sample units were closely scrutinized with a view to tease out the most relevant themes as evidence of their paradigmatic preference. In reality, this process began during the collection of data but only to be given more careful treatment needed later. The analysis has depended greatly on the reviewed literature for interpreting the empirical data to develop perspectives on curriculum issues and national development. The responses are sampled and presented in the chapters which follow to examine the ideas, opinions and views on different issues and problems of development. It is important to note that the data obtained through participant observation in selected sites like agricultural farms has been utilized to strengthen the interpretation of the results carried in this report.

The analysis of documents was done more or less in the same fashion. Each document was closely studied with a view in mind to identify those themes or messages which clarified issues and problems associated with the competing modernization and critical paradigms in development. As in the case of interviews, carefully selected excerpts that represent the salient issues in the study were identified, studied and documented for analysis based on reviewed literature.

3. 9 Methodological Difficulties

There is hardly any study which does not counter some methodological difficulties during the process of research. But the kind of problems which researchers confront are neither uniform nor do exert the same influence on various studies. Thus, various research contexts present problems at different times to various researchers in different ways. This study faced some problems which need to be pointed out in reading the research report. First, the interview with students commenced at the time of the University closure following the completion of final year examinations. As expected, the divided loyalty among students between taking part in the study and responding to the administrative pressure to vacate halls of residence was real. As a result, some potential interviewees could have been lost to the study while the cost of research also increased since some participants had to be followed outside campus. Apart from that, the group interviews which were previously planned at the proposal writing became impossible to conduct in some cases.

Secondly, although during the preparation of the research proposal my intention was to conduct participant observation in as many selected sites as possible, this was not possible for 1989/90 student cohort since the research commenced during the final examinations stage. In particular, the opportunity to observe some lessons and generate discussions around them as had previously been planned could not be accomplished. At Makerere University, apart from observations at the Faculty itself, Kabanyolo University Farm where students spend their second year for practical work was the other site which was studied but without the students. On the outskirts of Kampala, Kawanda Research Station which had also been recently renovated by USAID was frequented to get some practical understanding of its operations. To the East of Uganda, Tororo District Farm Institute was visited twice following the advice from some senior instructors and administrators at the Faculty. The purpose again was to make an association with the kinds of activities being conducted there. Apart from these sites, no other was visited and observed.

Related to the above was the unwillingness of some students as well as instructors to participate in the study for reasons already been stated. Nevertheless, the final sample interviewed included a broad range of students and academics across most of the relevant divisions of the Faculty of Agriculture. Although it was felt necessary also to interview officials working at the USAID office at Nakasero (Kampala), this was not possible as permission was not granted. It would have been interesting to find out their views also on questions of national development, and rural development in particular. Similarly, it would have been also interesting to gather views from members of the Agricultural Policy Committee on the various issues in the study. This was not possible too for similar reasons. Although this methodological difficulties were real and significant, the data collected as described above was valid and reliable for the purposes of answering the various research questions raised above.

CHAPTER FOUR

STUDENTS' VOICES

4. 1 Introduction

This chapter provides a critical synthesis and analysis of the views expressed by a sample of students enrolled in the Bachelor of Science program in agriculture and Forestry on the various dimensions of their educational experiences. The major themes explored were their views on the competing modernization and dependency paradigms of underdevelopment and development, the role of international agencies in rural and agricultural development, the relevance of the agricultural program for national and rural development, the issues on women in national development, research orientation and the future job aspirations held by the students. The data analyzed here was obtained through taped interviews and documented field notes from 22 students as well as 72 undergraduate research reports presented to the Faculty in partial fulfillment for the award of the agricultural science degree. Also 12 Master of Science (Agricultural Economics) theses were critically examined in chapter six to provide additional data for the study. Before embarking on a critical analysis of the data, a brief account on the characteristics of the students is necessary.

4. 2 Student Composition in the Faculty of Agriculture and Forestry

The University admission records for the Faculty of Agriculture and Forestry show that about 120 students from Uganda and 4 from Tanzania registered in the 1989/90 academic year for B.Sc. degree programs in the options of Crop Science, Animal Science, Forestry, Agricultural Education and Extension, Agricultural Economics, Agricultural Engineering and Food Science and Technology. Apart from repeaters and transfers from other faculties, 14 students registered in the option of Food Science and Technology in which females out numbered men by over one half, about 23 registered in Forestry and about 14 in Agricultural Engineering option and the majority were in the remaining options. The figures given are not exact since the registration records with the Academic Registrar's office conflict slightly with the registration in the Faculty of Agriculture and Forestry. It is common for educational administrators either to miscount or simply fail to keep track of their students so that those who may drop out still continue on registers. Out of this number, 17 female students who registered were all Ugandans. It should also be noted that the Tanzanian students come to the Faculty through an exchange program under the Inter-University Council in East Africa.

In general the majority of the students admitted to this Faculty are predominantly from the southern half of Uganda due to the scarcity of comparatively good elementary and high schools in the north which was marginalized economically and politically by colonial development (Mamdani, 1976; Smith, 1984). Of the total admitted to study agriculture and Forestry that year only 6 students (all male) were from the north of Uganda. The low number of northern students seems to have been also exacerbated by the recent civil strife in the region which paralyzed most economic activity for at least four years. Even if the four mature-age route students whose schools of origin are not indicated are added to the list, the proportion of Northern Uganda students is not changed in any significant way. In truth, the north has been poorly represented at Makerere University as a whole even in previous years precisely due to economic and political reasons indicated above. Karamoja in the Northeast, for example, has traditionally been excluded from the population statistics at Makerere.

A closer look at the student characteristics reveals further that about 60% of all the students in this programs attended high schools in central region followed by 20% who did so in the East of Uganda. That is, over one half of the students enrolled in the program that year studied in schools in central region alone with the rest scattered thinly between the rest of Uganda. Another striking feature is that about one half of all female students were provided by two girls' boarding schools in central region; Namagunga and Nabisunsa at the outskirts of Kampala. These two elite schools located around Kampala city together with Tororo Girls' School at the border with Kenya monopolized the female enrollment in the Faculty that same year. No women were provided to the Faculty by northern schools. Again it is important to note that out of over 400 high schools in the country that prepare students for the university, a mere 39 schools sent students to the Faculty of Agriculture and Forestry for studies in programs already mentioned above. Although this Faculty is less prestigious that Engineering and Human Medicine, admission is still selective excluding the majority of students especially from poorer backgrounds everywhere in Uganda.

At this point it would also be useful to contrast this picture with the enrollment that same year in other professional faculties. In Engineering, Kings College, Budo and St Mary's College, Kisubi lying within the proximity of Kampala city provided about one half of the enrollment that year while the other half came from similarly elite schools like Tororo college in the border with Kenya and Namilyango College to the east of Kampala. Gayaza High school, another elite missionary girls' school, provided the second woman to that Faculty. For Engineering, only 15 schools in Uganda sent students but without any significant input from the northern part of Uganda. The story is very much the same with the faculties of Veterinary Medicine and Human Medicine. For the latter, almost all women admitted that year studied in Namagunga and Gayaza close to Kampala and again with almost none from the north.

Clearly, admissions to Makerere University have increasingly become the monopoly of the students from wealthy backgrounds who are especially raised in the urban areas. The records actually show that more and more schools in central region in particular stand a much better chance to send students to professional faculties due to their historical advantage which concentrated wealth in the southern part of Uganda. The records show further that in all faculties and schools, northern students in professional faculties are more likely to have studied in the southern schools. This is true for admissions to almost all programs in the University. Thus, one could say that being a woman in Uganda is a disadvantage in terms of educational access only if one is from a relatively poorer background especially from low-income farming activities. The key to understanding this scenario is that it costs about one million Uganda shillings (US$1000) per year to provide education for one child in schools such as Kings College, Budo with all kinds of costs included. The Environmental Almanac (1993) puts the per capita income in Uganda at about 250, 000 Uganda shillings or US$256 which, when strictly scrutinized, falsifies the true condition of the rural masses who lie below that figure. Thus, the students enrolled in the faculty of Agriculture and Forestry, like their counterparts elsewhere in the university are from relatively wealthier families in the Ugandan context.

4. 3 Students' Views on Paradigms in Rural Poverty and Underdevelopment

The interviews on paradigms on development sought to obtain what the students regarded were the key factors which explain rural poverty and underdevelopment. The major thrust was to find out whether students primarily attributed poverty, hunger and famine to nature and geography resulting in low agricultural yields or saw these phenomena in the social actions of competing class groups. The interviews overwhelmingly revealed that modernization factors such as lack of education and primitivity, climatic changes, "population explosion" were cited to explain the malaise and disenchantment by the poor masses. In a few cases where the respondents cited factors such as the role of international agencies as a source of poverty of the rural masses, it was done in an in consistent manner as attributes in the modernization paradigm repeatedly crept into the answers. It was also quite striking that for nearly all students, the blame for poverty was associated with the nature of the farming occupation itself indicating a preference for industrialization in its place.

As will be confirmed further in the students' research reports, lack of empathy, compassion and solidarity with the rural masses were the most important distinguishing features in their reaction to the plight of the poor. To a large extent, this attitudes could be attributed to the influence which the modernization paradigm appears to have had on their educational experiences throughout the course of the program. With social origins that are devoid of rural exposure as the information also gathered from their instructors indicated plus the lack of any intervention in the program to respond to such deficiencies, it was no surprise that students under preparation as rural workers showed little solidarity with the poor majorities. In addition, there was a common tendency to view rural development in terms of organization of production geared towards export agriculture rather than for domestic consumption which, as shall be shown in the next chapters, is also the cornerstone of the national policy of the NRM government.

One respondent in a group interviewed on this matter (June 21, 1993) argued as follows:

> Generally people are poor in rural areas because of the types of occupations they are engaged in like in agriculture. Most of them are peasant farmers operating at a small-scale and then most of them they are very ignorant of factors of production whereby someone produces a lot of food but in the end of it, it gets rotten in the granary because he lacks the idea of marketing.

Likewise, another responded who was interviewed added the following to a list of responses on the question:

> Employment also. In rural areas it is mainly agriculture which is the sources of employment. When you look at agriculture in most developing countries, it is mainly underdeveloped. The type of farming carried out in developing countries in on small plots which cannot produce much and also use poor technology.

In this example, the preference is for large scale farming which is consistent with the ideas and beliefs in mainstream agricultural economics geared towards production for the "market" rather than domestic consumption. In the first place, again as Hartmann & Boyce (1983) have shown, small farms are more productive that larger ones. They argue cogently that farmers with little land work the land with diligence and devote time and energies to maximize the output unlike landlords who reap returns from sharecroppers without paying close attention to developing the land. They also say that rich farmers quite commonly spend the returns from agriculture on "luxury" items such motor-cycles. The price of one may be equal to 20 years of earnings for poor farmers. Secondly, as George (1976) also noted, poverty must be associated with the unequal distribution of land resources including water which has produced a situation in these societies in which the majority have no land and depend either on landlords as sharecroppers or have been compelled to sell their labor power seasonally to survive. She writes:

> For it is poverty that is the problem. Many people have tended automatically to ascribe world hunger partly to shiftlessness or stupidity on the part of 'backward farmers' - either they won't work or they stubbornly refuse accept modern farming methods. Neither is true. We have seen that small holders invariably produce more per hectare than large ones- despite the fact that they have less access to purchased in puts and that the land they do work may often be of a poorer quality. (143)

The popular view held by students and also by their instructors and bureaucrats which located poverty in the innate qualities of individual farmers ignores the realities of structural violence. The majority of the respondents appeared generally insensitive to the observation that in rural places most of the people who are wealthy are also those with huge amounts of land and in addition possess considerable social and political power. In cases where awareness for this point was made, it was contradicted by the call for farmers to increase production using modern inputs which are suited to large scale production as demanded by the "aid" agencies. In Uganda the land tenure systems emerged in response to the need to consolidate political and economic occupation under colonialism in which a landed "gentry" was created out of the land that was originally owned on communal basis (Mamdani, 1976). This skewed distribution of land resources was later compounded by positions held in the political office which today has remained perhaps the most controversial issue in the post-independence times.

In the research reports which are analyzed in the next chapter, there was also an overwhelming emphasis on the lack of education by farmers as a key impediment to rural development especially among students who conducted agronomic surveys. Rural farmers have typically been socially typed as "illiterate, backward and primitive". In some cases they were referred to as being "just there" as one female respondent put it.

> Remoteness. They are just there, they do not know what is happening in other places. They just feel that what they are doing is the right thing. They have low levels of education.

The implication of the above statement is that educated professionals in the agricultural science have a superior understanding of modern ways of living and farming which sets them quite apart from the rural masses. The need to extend agricultural scientific knowledge under the command of the educated scientist has its origins in this attitude to the underdevelopment and the poverty of the masses.

It is quite clear that in order to improve and integrate the masses into the modern economy so that they cease thinking "that what they are doing is the right thing", the cure suggested was to transfer technology as one respondent in the same group added:

> And also the system, they should develop a system whereby information can flow to that man, the low man because currently they can produce technology but it can not diffuse to these people because they is no information flow or the approaches used may not be appropriate, so those people who are concerned with dissemination of technologies, I would say still lack the methodologies to suit these small-scale farmers who are the majority.

The words in the statement are evidently couched in the modernization paradigm. The "diffusion of innovations" was popularized by Rogers (1983) as its venerable father who, as already pointed out, was a staunch believer in top-to-bottom or modernization approaches to development.

In another interview, the following remarks were recorded regarding the poverty of the masses.

> In many rural areas people are generally illiterate and so can not change their standard of living. They lack knowledge on how to improve agriculture so that their crops are always destroyed by pests and diseases. You find that agriculture as a rural profession has not progressed because of lack of education of the farmers and therefore you need to give education to farmers. Okay, take for example, in advanced countries like America, there the farmers are educated and can follow instructions by the agricultural extensionists and also farm on a large scale, For us that is not the case.

In the statement given above, North countries is deemed to provide the model for development. Indeed, most societies have attempted to transform their societies following the liberal reformist model of development with miserable results. As critical analysts have argued, the conditions which made the North develop are generally lacking today for poor societies (Wallerstein, 1979; Frank, 1968; Brantlinger, 1985; Amin, 1974; Cordoso & Faletto, 1979). The advancement by the North was made possible with the support of the rest of the world through various episodes such as slave as trade, colonialism and neocolonialism. While the North "developed" to its present stage the rest of the world was being underdeveloped. Thus, the current poor condition in Africa, for example, needs to be examined in the historical context in which its resources have been exploited with impunity for the advancement of the North. Also, It would be necessary to note that prior to the North hegemony, superior civilizations had exited everywhere in the world (Abu-Lughod, 1989; Amin, 1989: Diop, 1987). They argue that each culture has an inherent capacity to grow whenever conditions are conducive. Thus, the structural constraints to autonomous development for South societies escapes the eye of the respondent who places lot of trust in the role of education to change the rural condition.

In a consistent fashion within the modernization paradigm, respondents especially in the Crop Science option pointed to the diseases and pests which reduce yields. A respondent in the Crop Science option put it as follows:

> And may be the other thing is that especially on crops which people produce, usually you find that there are many diseases and pests which are not controlled at all in the farmers gardens, you find that the yields are low and in connection to that also the varieties of the crops we have, there is no research on many of them such that even if there are no diseases and pests and the climate is good you find that the yield is still low.

A big assumption is made to the effect that with research, the yields will increase and the problem of famine would disappear. What is lacking here is an awareness that according to the National Agricultural Research Organization (NARO) which coordinates all research in agriculture in Uganda, emphasis has been placed on doing research on crops for export under the Economic Recovery Program (ERP) funded largely by IMF. This move by NRM marks a continuation rather that a radical departure form the colonial research orientation from which rural farmers benefited very little, if anything. Again in a consistent fashion with the modernization paradigm, the respondent made a caveat on climatic factors which are seen as preventing good harvests and thereby leading to poverty among the farmers. While the threat of climatic changes in affecting yield is quite real, what is left out is the relationship between ecological damage and poverty (Redclift, 1984). In similar fashion, the 1993/94 Budget for Uganda (page 6) attributes the crop failures for the year 1991/92 to rainfall conditions with no attention given to the recurring environmental destruction that is the result of poverty. The emphasis on export-led growth strategy has also led to a research orientation in NARO which pays only lip service to domestic food supply for human consumption, hence making Uganda vulnerable to famine and hunger (Turshen, 1989; Timberlake, 1985).

The interviews on June 22, 1993 provided additional insights on what students feel about the causes of rural poverty. In relating educational level attained by farmers to wages, one respondent commented:

> I think even the level of education, you find that most of the people in the villages or rural areas are very unskilled and therefore they are in low demand and in case if they try to work the pay is just too low such that the very little they are paid is just consumed.

This would appear to lend credence to the World Bank notion of "rates of return" which argues that wages earned are commensurate with the level of education attained by the individual (Psacharapoulos, 1985). Also, Jamison & Lau (1982), working with the World Bank have done a study on the relationship between farmer education and their productivity in which they concluded that farmers with more education show levels of higher productivity because they are able to use information. It was further said that education enhances a farmer's ability to know his alternatives, to know when and where to buy and sell. This is objectionable on many accounts. First, the respondents were unaware that in a capitalist society wages are determined not on popular basis but by the employers whose main interest it is to maximize profits by minimizing wage costs. As a study which became highly influential within the World Bank, non-formal education programs for rural development in the mid-1970s were launched in various regions in the South..

As future technocrats and policy makers in agriculture, the students appeared to be unaware of how, for example, agribusiness commonly invited by South governments to undertake commercial farming renders millions of people destitute as low wage earners and also impoverishes the soils considerable in the drive to maximize profits as in the case of Kenya, the Philippines and Latin America (Dinham & Hines, 1983; Burbach & Flynn, 1980; Bello, Kinley & Elinson, 1982). Women as a social group are in all cases more severely affected than men. In sum, the negative effects of commoditization of farming rather than lack of education speak more loudly as the real causes of rural poverty and underdevelopment.

A further comment is that the respondents in this group ignored the fact that quite often international agencies conduct research to railroad through policies that are geared towards empowering the strong rather than the weak (Samoff, 1992). A case in point is the role presently played by USAID and the World Bank to mandate South societies through political conditionalities to follow structural adjustment programs in agriculture which are tailored towards the entrenchment of the abstract and ahistorical market economy which has meaning and use for these agencies and their governments as Bromley & Bush (1994) indicate in regard to Egypt. In Uganda, the MFAD program located in the Faculty of Agriculture was conceived and implemented within this framework as future analyses shall show. In all interviews there was an absolute appreciation of this fact by students who are being prepared to play key roles as agricultural scientists and policy makers.

There was also hardly any instance in the interviews when respondents understood the daunting problems of poverty among rural people in terms of a critical appraisal of the manner in which the world economy operates. In one conversation, one female student interjected.

> The production level in rural areas is extremely low such that what is produced is for home consumption and very little is sold. They do not have much to help them with other things.

The preoccupation with producing food for sale was overwhelming. What is more, several respondents also uncritically accused farmers for not producing "surplus" to sell in the market. Even the claim made to the effect that the little food farmers produce is mostly consumed at home is equally ridden with acute problems. In several studies which have been conducted on this issue, poorer farmers rather than rich farmers are more coercively engaged in selling food (Bernstein, 1979; Williams, 1980; Hill, 1982; Whitehead, 1982). Due to their exposure to mainstream economic ideas, it comes as no surprise that students believe that what poor farmers sell is actually "surplus", beyond their domestic needs. It is important to draw additional insights into this issue.

In a study of a village in Bangladesh, Hartmann & Boyce (1983:197) cite one case of a rural landless farmer as follows:

> I found nothing. No work means no rice. Yesterday I could not find work, and I ate nothing all day. Finally in the afternoon I ripped three bamboo poles out of the wall of my house, chopped them up and sold them in town as fire-wood. With the money, I bought three pounds of wheat flour. I had a half a *taka* left over, so I bought a cup of tea and a handful of puffed rice. Last night we ate the flour. I have six mouths to feed. Even when I find work, I only earn two pounds of rice and one *taka*. Two pounds of rice won't even fill the stomachs of two people-for six it nothing. And what kind you buy today with one *taka* ? Each day I ask myself: How will I live ? How ill my children live ?

The reality of the situation above is evident in most societies in the South. From the evidence collected so far, students who were prepared to work as technocrats for rural development appear to lack a critical sensitivity to structural marginalization of the masses.

The outcome for lack of critical understanding of rural poverty leads also to an erroneous over-emphasis on the role of technology as the "savior" of the people. This emphasis turned out to be common for students, instructors and government bureaucrats who were interviewed reflecting a technocratic thrust of professional culture in the agricultural and rural development field. As one respondent put it,

> Also there is the problem of lack of technology for farming and as a result farmers use simple tools such hoes which can not grow much. The extension service is inadequate and government should strengthen the extension service which will be able to link research stations to the farmer.

As will be amply shown, all groups interviewed believed strongly that extension services are necessary in order to alleviate poverty and underdevelopment of rural areas. A major weaknesses of this contention lies in the wrong assumption that the knowledge that agricultural scientists have is superior to what farmers know. As Timberlake (1985) notes, extension agents quite often have very little to offer despite the fact that they consume much of the "aid" given by international agencies. This arises from the modernization development model which sets the scientists apart from the farmers such that the social conditions of farming are never fully internalized by the agents (George, 1976; George, 1994). Thus, the respondent had not been sensitized to the limitation of the extension service based on Training and Visit (T & V) which is advocated by mainstream development agencies.

However, in a rare instance, one student challenged this approach in echoing George (1976) and others in calling for the active involvement of farmers in all the decisions regarding technology.

> And I think one of the causes of low production is lack of appropriate technologies for these people because you find that the research being done like in our country here is not farmer-centered, I mean the farmer does not participate in determining what he wants *but these people think in the university or research stations,* they carry out research without consulting the farmer so they develop technologies which the farmer cannot adopt and he remains at subsistence level. (*italics added*)

This was an admirable albeit minority support for the "critical/dependency" paradigm on technology although he still maintained "subsistence level" which is the language of aid agencies. As George (1976) painstakingly notes, after several years of the involvement of governments and international agencies in development, not a single viable economy has emerged. For her, the correct approach is that which respects rural farmers and their culture and geared towards self-reliance.

> ... One very good way is to begin by using one's most abundant resource-the population. It is possible to listen to one's own peasants instead of always attempting to impose technology on them from on high, "for their own good". Peasants have been doing research and development for generations-otherwise they would not have survived. (103)

The implication here is to adopt grassroots approach to rural development along the lines suggested by some progressive non-governmental organizations (NGOs) as well as farmer associations. In recent decades, there is evidence of peoples' movements and organizations empowering themselves to challenge local and national power structures associated with the marginalization of the poor. However, the possibilities for the co-optation of these movements is real as Kothari (1990) notes but which development educators at the grassroots level are fully aware about. Equally worrying is the paternalism of some NGOs like evangelic missions and liberal government-funded NGOs with the agenda to effect a policy of "containment" that ensures the perpetuation of the status quo in which the South remains at the bottom of the world hierarchy of power and prestige (Tandon, 1994. Amin, 1991; World Bank, 1993). It should be noted further that many scholars are weary about mounting scathing criticisms on the role of NGOs in South societies. Clearly "he who pays the piper calls the tune" as Johnson (1992) implies in a general way, needs to be considered as a factor on the evaluation of non-governmental agencies in development.

Looking closely at the class notes taken by various students during lectures especially on Agricultural Development, it was quite evident that the main focus was to stress the writings of modernization theorists most notably that by the classical economists, W. W. Rostow who postulated the "stages of growth" in development of societies but with little concern for the critique of the ideological basis of his propositions. Missing in the notes was any reference to critical analysts of development such as George or Feder who have shown the role of the world economic forces in the creation poverty and marginalization especially among the rural masses in the South. Missing also in the reading lists for students are texts and materials which could enable them to understand in a critical way the place which Uganda occupies in the international division of labor out of which resources are siphoned for the benefit of the North without any reasonable returns to the masses.

Reacting to the same question on the causes of rural development, a respondent in the Agricultural Education and Extension option narrated the origins of development theory but fell short of a holistic understanding of the critical paradigm.

> The explanation I get , the causes of rural poverty. One of the major causes is that the rural areas have been left behind because of lack of planning right from the center, planning not really geared to local areas, OK before that in early 1950s and 1960s when most of these countries were trying to get independence from the colonialists, it was argued that there should be an increase in GDP, Gross Domestic product and that GDP would trickle down the masses in rural areas. Most of the theories that were developed to develop the rural areas were based on that formula that nations should try to increase GDP and GDP would trickle down to the masses but so happened that it did not materialize because this created urban bias. Most of the people and most industries, investments were first out in urban areas and this created what? a way of migration. Most young people, useful people moved to urban areas in search of well-paying jobs and did not want to engage themselves in agriculture.

It would appear that there was a failure to realize that urban development in societies such as Uganda did not occur in response to the local societal needs but was simply imposed during the creation of the dependent economy. Consequently, the reality in such urban areas shows that most of the residents are found in the squalor of the slums to which little attention is also devoted by central planning. As reported in the previous analyses, such residents have attempted to escape from rural famine and poverty into the urban centers in search of employment in the dwindling modern sector. Hence, it is important to take serious note of the structural inequalities which are the underpinnings of poverty and underdevelopment rather than simply paying attention to the failures in centralized planning. Furthermore, the above respondent attributes population growth as a primary cause of rural poverty as it is often found in the modernization paradigm:

> Then the other thing another cause of rural poverty is the high population, because the population of developing countries especially Uganda, OK they tell us that between the last century last census prior to this one of 1991 that is 1980 census between 1980 and 1991 when the census took place, the population growth rate is 2.5 per annum so you find that in rural areas land areas are not expanding but the population is increasing, so you find that most of the people are really cultivating very small plots of land and they cannot and it is only agriculture which is dominant and they only grow what they can produce. In fact they cannot get what we call *Effective Supply*. They just force themselves to sell something but it is not actually surplus, they sell because they want money because of poverty. The unenviable plots of land they cultivate I mean land is just and the funny thing is that in the rural areas you find very many of these big people , they own vast areas of land which is not even developed so land is vested in few hands.

It is acknowledged that the respondent does link rural poverty to the unequal access of land in rural areas. This point has been made by many scholars (Cleaver, 1972; Dumont, 1980; George, 1976; Redclift, 1984; Feder, 1976). As analyses in the critical paradigm clearly demonstrate, the population question cannot be fully understood without bringing in structural injustices within and between societies. Nevertheless, the notion of effective supply in his statement which is also reflected in most lecture notes is indicative of the export-led development strategy which disregards "delinking" in terms of making sustained efforts to respond to the internal needs of the population. In the research reports that will be analyzed later, the preoccupation with export agriculture reflected in the emphasis on increasing productivity was also dominant. Similarly, the theses written by graduate student under the MFAD program laid emphasis on the commoditization of agriculture rather showing any concern to meet the basic needs of the masses. In general the economic analysis given by the students did not show a serious sensitivity to the dangers which are inherent in centralized forms of planning shaped by the modernization paradigm in terms of meeting the basic necessities for the majority of the population.

When queried on what farmers or government could be doing to correct the anomalous unequal access to land in Uganda at the present time, most respondents pleaded helplessness, hoping that the state elites may one day change their minds and hearts and help the rural poor. As one of them summed it:

> At the moment I do not think that a land reform can be carried out effectively because the policy makers are the people who own these vast areas of land in the rural areas so they cannot put up a policy which will ensure equitable distribution of land because it will be going against their interests so that one is hard to tackle.

Likewise, one group concurred on the inability of farmers to do anything while at the same time hoping that government may recognize the problem and give land to farmers who do not have it.

> There is nothing farmers can do to get land unless the government comes in and gives them land because for me I think that the people who have a lot of land, okay if they want to sell cannot sell to the poor farmers so I think this issue of land it is really government to tackle but farmers who cannot do it.

Missing in all responses by students to this query are the forms of resistance which farmers have historically waged to protect and advance their interests. Scott (1985) refers to these forms of resistance as "weapons of the weak" or "everyday forms of resistance"

(Scott, 1989). Again as Harmann & Boyce (1983) point out too regarding poverty in Bangladesh as cited above, rural people quite often lodge clear resistance and even bring retribution upon those considered to be responsible for their misery not necessarily through open rebellion directed at bring about long term change. When one hears that a magistrate's foot has been chopped off or that a chief's house was burnt down the previous night following a land settlement between the poor and the rich as it is common in societies like Uganda, these may be regarded as "weapons of the weak". This is an important issues which opens our eyes to the dynamics in the agrarian economies in the South societies.

The hidden aggression may also be expressed in drama, dance and music where the oppressed symbolically reassert their social position and undertake revenge (Okot p'Bitek, 1974). In a similar vein, Johnson (1992) sees the Ugandan medium, Alice Lakwena, who waged a war against NRM was motivated to express discontent over the humiliating economic and political conditions faced by the rural people. The authorities on the other hand prefer to view all these as actions of lawlessness by "incorrigible characters" who have refused to abide with the "good" law. The argument here is that landless people must respect property law which protects the interests of the wealthier segments of their societies since their poverty is caused by none other than themselves. Most students were also unaware of exemplars of landless peasants engaging in invasion of idle land in organized efforts to meet basic needs (Redclift, 1984).

Lack of critical attention to developments in their own field of study was also demonstrated by the students' oversight of the resistance which rural people in cotton-growing areas especially in the east of Uganda have waged for years through an overt refusal to cultivate this "black man's" crop. The governments at various times have responded by mounting the so-called campaigns as commonly seen on Tata lorries on Ugandan roads written **GROW MORE COTTON**. One wonders how rural people who have been systematically excluded from the elitist education could possibly get the message written in the language of the colonizer. Further evidence for this resistance could be found in the National Agricultural Research Organization (NARO) and the Agriculture Sector Memorandum (1993) which make a strong plea for farmers to receive "incentives" so that cotton may be grown. This issue should be elaborated a little more.

In another instance, Vincent (1982) has graphically portrayed the saddening effects of forced labor in Uganda towards the cultivation of cotton to meet the textile needs of Europe. The main thesis of her work lies in the fact that cotton was imposed in the early part of the 19th century by colonial administrators and missionaries using the most brutal methods such as forced labor as well as highly controlled fertility for women to ensure the production of the crop for export. To facilitate increased production, the plow was introduced principally for men which Boserup (1970) refers to erroneously as characterizing "female farming systems". What she forgets is that the introduction of the plow in such areas impoverished the soil due to lack of crop rotation and shortened fallow period and opened the way for the most devastating famine in 1919 accompanied by severe epidemics or diseases of "progress" which exterminated local population as well as some missionaries in Eastern Uganda.

Cotton production neither increased nor improved the earnings of the majority of farmers except the elite. I have argued elsewhere that the present low population growth rates in these districts is traceable to the modernization of agriculture from which the people have failed to recover to this day (see appendix A 4). Thus the refusal to grow cotton needs to be analyzed within the political economy of underdevelopment as related to the development of colonial capitalism. No student seemed to have the slightest understanding or interest in such analyses.

Thus, what this indicates is the inability for this cohort of students to decipher and understand the feelings and sometimes violent reaction against the unequal distribution of resources which farmers have historically waged in their own society. It would appear that this is related to lack of close association between students and the events which repeatedly occur in many regions in Uganda. Yet it would be extremely important for the students to develop a critical eye to the issues and problems of rural farming and how violent and other forms of resistance which are detrimental to social development may actually occur. Also, the students should be able to see the niche or points of entry through which they could make meaningful interventions to encourage more peaceful ways of conflict resolution which includes their involvement in spearheading the debate pertaining to the distribution of wealth in society.

Another set of explanations for rural poverty which dominated most responses was structured upon the failure of the national marketing system to provide the necessary infrastructure and marketing channels for the agricultural produce from rural areas. As one responded put it,

> Also I think of the problems facing farmers in rural areas is that what they produce does not get bought because they are just there in the villages with their produce without transport to take it to towns where they could be bought. Roads are bad and sometimes there are no vehicles and therefore these rich people in town when they get transport simply go and collect the produce at low prices. I mean farmers have no transport to sell their produce directly so that they could money to buy other things. These middlemen are dangerous because, I will give you an example, a kilo of maize could be bought at less than 1000 shillings but when it gets to town

> the prices can be double. So that is another reason for the poverty in rural areas.

The problems pertaining to absence of transport for the produce is real enough but the students generally failed to see that the commoditization of agriculture is to a great extent responsible for the poverty of the masses. In reality, as cited above, the rural farmers who are engaged in selling food do so as a response to their impoverished condition and not because of the existence of surplus foodstuffs after basic needs have been met. As Raikes (1988) points out, proponents of the modernization paradigm as well as some variants of the critical paradigm erroneously regard the modernization of agriculture as a necessary step towards resolving problems of famine and hunger. Here lies the common struggle to modernize agriculture along the lines of the market economy but which basically is under the command of the strong rather than the weak. Consequently, once societies have become disembodied through their integration to the world economy, social problems of hunger and famine which never become resolved through technical means begin to arise. While emphasizing the role of transport and marketing channels in agriculture, all respondents were not attentive to these factors themselves as connected to causes of hunger and famine in their responses.

A related response which permeated through the responses was the claim that the masses live in poverty simply because they are engaged in agriculture whose dividends are naturally low in comparison to the modern sector.

> Employment also. In rural areas it is mainly agriculture which is the source of employment. When you look at agriculture in developing countries, it is underdeveloped. So you find that they do not have good things found in towns. When you look at rural areas, infrastructure is very poor there, in most areas you don't find electricity yet with modern people it is part of life not to be dispensed with so that you find that among town people there is a fridge and generator unlike rural areas.

From the quote, development is understood in terms being above the "poverty line" as commonly expressed in economic literature which influences the decisions often taken by international agencies in relating to the poor South. The experience of mega-dams and irrigation projects which have failed to deliver development to the masses everywhere in the South are influenced by the modernization logic of equating progress with the possession of material assets manufactured for profits by a small corporate class in the North. Thus, to be "modern", so goes the argument, one needs to possess material items often manufactured in the industries as the respondent stated.

From two female students, the following responses were obtained:

> It would be because of poor welfare like poor education of the peasants and illiteracy. Then there is poor health because of poor services in the rural areas. They also have high risks and uncertainties whereby they cannot take a new innovation very quickly.
>
> Some could be having plans to develop but they lack capital. Then their is the Rural Farmers Scheme (RFS) which was meant to help poor people but they are almost there for a certain class of people, they do not really aim at the rural people.

Concerning the Rural Farmers Scheme, it is important to stress that this was created by the government as a strategy to solve the problems of the masses through the provision of capital. As a modernization approach to agricultural development, the Uganda Commercial Bank which loaned the money to the farmers does not focus its attention on the marginalized majorities who cannot meet the criteria for loan-repayment as its officials who were interviewed testified. This failure of the Rural Scheme to provide for the farmers is quite well known and indeed it has almost collapsed in the last few years but this is not evidence to suggest that students understood the problems from the critical perspective since structural inequalities supported by development agencies, for example, were not critiqued as reported earlier. It was also contradicted by the views of the instructors and bureaucrats who viewed the failures in terms of administrative efficiency and management.

One could say that the two women understood the problems of rural poverty in the framework of modernization paradigm since there was no consistency in their views in the alternative paradigm. Rather than focus on the deeper issues of structural violence resulting from the historical development of the world economy, they preferred to lay the blame on the masses. Closely analyzed, the responses beckon the intervention of government and international agencies to extend the services to the rural people. Thus, development is something which is done to the people and not the other round. As seen in the next section, the students also regarded the kind of "assistance" often given to South societies by international agencies in rural development positively as a good strategy towards "modernity" so far viewed to be confined to the North.

4. 4 International Organizations, Poverty and Underdevelopment

In particular, the interviews with the students on the role of international agencies in national development were geared to solicit their views on what they felt about their role in the debate on poverty and underdevelopment. More specifically, the students were probed on the agencies' activities as they relate to issues of environmental care and protection, social benefits to the rural poor arising from technology transfer, and the production of high-caliber personnel for modern economies. Apart from very few cases, the majority of the respondents evaluated the agencies positively especially by drawing attention to the training of personnel for agricultural development which has recently been provided by USAID in Uganda. Criticisms on the technology transfer in general were scanty except in a few cases where there were occasional remarks regarding its inappropriateness but with almost no sensitivity shown for the massive environmental destruction which often accompanies such transfers. It was most evident from the interviews on this issue that students overwhelmingly presented a positive assessment of the role of international agencies in promoting agricultural and rural development with USAID, still active in their Faculty often being cited as reference. The lack of a systematic understanding of radical global political economy was evident from the uncritical endorsement of the agencies activities in supporting national economies of most societies through loans, grants and other forms of "aid". This general endorsement is not surprising therefore in a context where very little interest is paid to the operation of the world economy in a critical sense as also shown by the contents of students lecture notes especially in regard to courses on rural and agricultural development.

In lauding the role of international agencies in national development, one respondent in a group interview expressed the following views:

> O.K., these organizations actually play a major role, they do contribute a greater part or they play a major role in national development because right now in Uganda's economy, we have a balance of payments problem so it is these international financiers that are giving us and supporting us to top up what government can mobilize from internal resources otherwise our we are having budget deficits. So without them I think the nation cannot even run. However, much as they do contribute there is need to have clear policies at home so that for instance, if we are to, most people have advocated that in order to bring about development in rural areas developing countries should follow Integrated Rural Development whereby so many programs can be carried out, there are multi-sectoral programs like health, road construction, schools, agriculture, development programs, all these being implemented in the rural areas so that the standard of living of rural people can be lifted.

Omitted or ignored in the analysis is how international agencies being agencies of world capitalism have played a crucial role in orchestrating the present malaise in several Southern societies as I demonstrated earlier in the literature review (George, 1992; Payer, 1982; Smith, 1993; Toh & Cawagas, 1992). So many societies today are heavily in debt with IMF and the World Bank to the extent that the total GNP is inadequate to meet debt service charges alone. It is quite apparent that the new world order is poised on excluding and marginalizing South societies under 'global apartheid" in which the South control nothing (Mazrui, 1994; Tandon, 1994). Thus, the "conquest" as Chomsky (1993) puts it, still continues.

Similarly, the Integrated Development Programs (IDPs), also highlighted in the notes of the students, have shown little capacity in tackling various issues and problems in those societies where they were implemented. Botswana which was held as an examplar in the lecture notes is a staggering society that is besieged by international finance capital ready to maximize the exploitation of its massive mineral wealth. Consequently, social inequalities and poverty have not gone away but have instead deepened just like in any other African societies. As development strategies of the World Bank (Coombs & Manzoor, 1974), they are best seen as mechanisms to uphold rather than dislodge the status quo in which the world's majorities continue to live in dire poverty. What these programs never take into consideration is the fact that the unequal distribution of power and wealth between and within societies rather than the lack of sectoral integration are central to the discussions on poverty and underdevelopment. Regarding "good planning" which the students in Agricultural extension and economics in particular highlighted, there was little realization that a cycle of dependency on borrowed money can build up with few benefits to the poor majorities.

Views expressed by students regarding lack of "sustainability" of the externally-funded programs converged with what instructors in the Agricultural and Extension options also felt about international agencies. As one respondent explained,

> ...in Uganda at the moment there are so many projects that are going on funded by World Bank, IMF, USAID, FAO, UNDP there are so many projects going on and also with Rockefeller Foundation. The problem is that there is no sustainability. Once the financiers' assistance comes to a stop then that is the end of the program. The program cannot be sustained with internal resources.

Again here the respondents genuinely believed in the "humanitarian" mission of international agencies. The common outcry was to find ways in which the programs could be sustained. One respondent endorsed this view as follows:

> I would say so far like USAID, they have done a lot of building manpower for agriculture. They have facilitated training institutions in training manpower in agriculture. They are also funding some projects which are dealing with agriculture, but the problem is that we are always depending on donations from outside and there is no system whereby we are able to sustain in case the projects expire. So the problem is still of sustainability because when the projects end, then everything dries up.

On the issue of building manpower for Uganda, what the students fail to ask themselves is what really accrues to the rural poor from higher degrees achieved by the individuals through Manpower for Agricultural Development (MFAD) program which has trained over 70 Ugandans in the last four to five years. Missing in their minds also is the sociological truth that credentials as instruments of social selection, greatly privilege those who manage to attain them through "merit" while excluding and marginalizing the majorities. Furthermore, as Dore (1976) and Hudson (1992) demonstrate, rural people benefit even less where the priority of the individual graduates is to obtain the prestigious titles like "Doctor" rather than gain some critically relevant knowledge during studies abroad. The point is that this privileged position of the elites is dependent on the poverty of the masses and it is therefore naive to expect them to act for the betterment of the majorities especially if their socialization reflects principles, values and strategies of the dominant modernization paradigm. Furthermore, the respondents in general appear unfamiliar with the kind of concerns critical educators have raised to the effect that donor agencies socialize students abroad to become promoters of their corporate interests (Berman, 1979, 1992; Arnove, 1983).

In a similar vein, I had another respondent chip in his blame on South governments for their failure to come up with strategies for "sustainability" as follows:

> The problem is ours because it seems we are not doing enough to make sure that those things which are started are sustainable.

In agreement with the above view the following was expressed by another respondent:

> I think also the problem is ours because those guys should have built a kind of system whereby they should state what they are going to do but make sure that they know that at a certain time we shall withdraw. So they should put up a system whereby they could see to it that when they

> withdraw there is something in place so it is all upon them. But on the other hand we should also demand for it.

Yet another contribution on the lack of sustainability was provided as follows:

> They help us a lot for example, they bring projects for us the problem they are not sustainable because when they leave we cannot sustain the projects because of lack of funds. So you find that we are again left where we were. I will give you an example, for example in our Faculty here they have rehabilitated the Faculty building, labs and what not but you find that we cannot maintain them. So I think that there should be a method for making sure that the projects are sustainable.

Clearly, the program of agricultural development socialized the students towards a positive evaluation of international agencies as reflected in their views. Translating these views to the debate on development and underdevelopment, the rampant poverty and malaise in the South is caused by bad planning. In modernization paradigm, people are said to be poor as a result of internal constraints like poor management.

Continuing with the positive evaluation of the program funded by international agencies, another interesting contribution was made.

> The other thing I think, the problem lies more on our side than theirs because I do not think they just come and say we want to do this, we give them areas where we think they can help us, then after giving them areas they say what do you want?. We want this and this and they provide. So it is up to us to identify a way of at least of sustaining what they have come to help us with.

Let me note also that the questions which were set for the final examination of the students also exonerated international agencies in development by locating poverty and underdevelopment in the poor policies often charted by the governments. This will be analyzed in the next chapter.

The fact that students rated the agencies favorably while laying the blame on the local governments suggests that they were unaware of the various machinations which have been employed to perpetuate dependence of the South using funds provided from the North. In particular, there was no single mention of the role of international agencies in pre-emptying domestic research in the process of meeting external needs of the North and the role they have played in the making of domestic policies (Feder, 1979; Howe, 1975; Timberlake, 1985). Below is an advertisement which appeared in *The Economist* (October 24-30, 1992) headed "Democracy/Governance Advisor- Position Available" to help us shed some light on this crucial issue.

> The United States Agency for International Development requires Democracy/Governance (DG) Advisor to coordinate and implement a program of initiatives to promote accountable government in Zambia. The Advisor will coordinate initiatives in four areas: (1) constitutional reform and civic education, (ii) the development of an independent press, (iii) Strengthening the Zambian national Assembly, (iv) policy analysis and management in the cabinet office. The DG advisor will reside in Lusaka, Zambia where he/she will report to the Director of the USAID Mission in Zambia. The DG advisor will work extensively with relevant ministries and agencies of the Government of the Republic of Zambia and with relevant groups in the private sector. The advisor will also be expected to work closely with. Embassy.

Implicit in the above is the lack of autonomy for the new Zambian government as the continuance of aid is tied to political conditionalities. But at the bottom of the US policy to Africa is the strategic rents to be obtained from Zambia according to American interests rather than any genuine concern for participatory democracy which the masses need. In the neighboring Zaire, the US and her allies have continued to support President Mobutu's regime despite the glaring human rights abuses and lack of accountability to the masses simply due to the lucrative rents which continue to be extracted with impunity. Thus, the conclusion to draw is that given the kinds of views expressed by the students regarding international agencies, the agricultural science program appears not to have exposed them to critical literature and practice in the life of the program. However, there were some criticisms albeit minor regarding the agencies in national development.

From two women who were interviewed jointly the following response was obtained:

> The agencies are okay in development. However, there are some criticisms I should make about these donor agencies like they do not guide their projects according to the local situation they find in the rural areas. You find that their projects are not capable of meeting the situation in the rural environment. In most cases their program never change.

The other responded had the following to say:

> Well, it helps but at times they give aid in kind like machines. The technology at times is not compatible with our situation here. In case of their money you find that at times those people help to pay our local people here and when they leave everything comes to a standstill.

In another fairly rare instance, one respondent in the Crop Science option who also objected to the imposition of technology on the rural masses raised useful insights towards understanding international agencies in development. In his view, these agencies have interests of their own which are quite opposed to domestic needs. To quote,

> And then also most of these supporting agencies have their specific areas in their planning especially as far as crops are concerned. You find that some agencies may be concerned with passion fruit or beans, they may want passion fruit because they want to exploit it to their country so that let us say, passion fruit if it is funded, it may not be useful to the local farmer because he has no market for passion fruit as they do not have the skill to care for passion fruit as it is done in developed countries so that you find that most of these things are grown around towns.

Looking at the three quotes above a number of observations can be made. All critical analysts were unhappy with the imported technology but the women fell short of a complete dismissal of the agencies by endorsing the notion of lack of "sustainablity" as discussed earlier. The third critical analysts clearly located his analysis in the critical paradigm. As shall be shown in later analyzes, due to governments distrust of their own farmers to produce for the world market, quite commonly transnational corporations who produce on large-scale for export are invited (Dinham & Hines, 1983; Burbach & Flynn, 1980; Bornschier & Chase-Dunn, 1985; George, 1976; Ellwood, 1993). Apart from loss and mismanagement of land resources and cultural disorientation for the majorities, the society as a whole becomes dependent on imported materials and costly spare parts for the transplanted "industries" for packing passion fruit as stated above. In Kenya, Dinham & Hines (page 158) write that " *Del Monte* imported everything but a few wooden pallets in order to export pineapples". The state increasingly became impoverished in the process of generating foreign exchange from sources other than pineapple sales to sustain the capital-intensive production.

Still looking at post-independence experience in Kenya, Gibbon (1992) carefully depicts the increased interest which has recently been given to horticultural products vis-a-vis the cultivation of food for consumption. This "elite" agriculture very likely would not benefit the majority of the population except those connected with state power. The point is that the cultivation of flowers for export in dependent societies , as the monopoly of the elite, takes precedence over the cultivation of food crops and as a result such societies become vulnerable to famine and hunger. Thus, farmers are channeled to cultivation of crops which are of little value to their daily food requirements. Listening and talking to one's peasants, as George (1994) recommends could avert such situations which are potentially pregnant with perpetual conflict and recurrent violence. Such a critical understanding to the political economy of agriculture, however, was generally missing in the voices of most students interviewed.

Implicit also in the evaluation of the critical analyst above is that research in crops is necessarily directed to passion fruit while vital crops which sustain the farmers are disregarded. This has been a distinguishing mark of the agricultural research strategies during colonial days but which unfortunately have been embraced with enthusiasm by post-independence governments throughout the South. In the analysis of the students' research reports which I have done in chapter five, there are several cases of researches of this kind which are dominated by external rather than internal needs.

The respondents were not also totally ignorant of the class nature of the social order. In elucidating the negative role of the agencies for rural people, one respondent had the following to say:

> These organizations would improve the rural people but then you find that there are some people behind these organizations, people who are already well-off, usually behind these organizations so that when it comes to benefiting from these organizations, you find that those who are already well-off benefit even more than the rural people themselves. First of all most people do not know what these organizations are actually about. Well I think these organizations should identify the target population and deal with them directly. Then it would be more effective.

As this statement indicates, the class nature of the exploitation in South societies is known to some extent. It is noticeable, however, that the respondent never dismissed the international agencies on ideological grounds as he believed that possibilities of reform still exist. Clements (1993) holds a similar view that if international agencies could restructure their relationship with their clients, there would be room to make rapid progress among the masses in the South. This view is based on the modernization assumptions that the contradictions in the capitalist structure could actual be reformed for the better. In other words, the possibility to reform the agencies exists only if local governments and officials of the agencies themselves could recognize the real impediments to effective performance.

What is left out in the discussion is the subtle manner through which agencies cajole, bribe and coerce intellectuals, bureaucrats and politicians into collaboration in the process of building the society on the assumptions of the modernization paradigm. With almost no experience in government work, it is easy also for students to be deluded into thinking that the "political class" could be bypassed in meeting the basic needs of the masses without trouble. It would appear that the program of study only marginally exposed the students to the possibilities for empowerment of the masses through a systematic study of the role of NGOs and peoples' social movements in national development. From such studies possibilities for examining the ideological grounds for the activities of these agencies could shed some light on the inability of the state to deliver goods to the masses.

In linking international agencies and technology transfer to societies in the South, in nearly all cases the students reported that quite often the technology received here is inappropriate for the needs of the small-scale farmers. As shall be shown later, they felt that their experience at Kabanyolo for the second year of study was not very productive partly due to the irrelevance of technology that was used there. When probed on what they felt were the main problems associated with imported technology, the majority cited logistics, inappropriateness to the needs of the uneducated farmers, land fragmentation and lack of grassroots participation and loss of interest by government officials. As one respondent commented,

> Because really when these donors come, the local man has no choice. So it is the government talking for the local man. I would say that people are poor because of the government.

In another contribution, one female also felt that the masses have been left out of the decision making process.

> The farmer is not involved anywhere in planning, *he* is there to consume, *he* is just like a consumer who is not involved in the process of production.

Almost all students interviewed stressed the lack of participation by the farmers as one major bottleneck to the development of appropriate technology although the militancy of the argument was quite low. This is not surprising due to the fact that in the reading list which shall also be referred to in further analysis, the text by Chambers (1983) entitled *Rural Development: Putting the last First* is available with the Department of Agricultural Economics. The central argument in the text is that professionals in various disciplines act as "development tourists" who are habitually in a hurry to get away from rural areas whenever they have assignments to conduct. They have little patience to study at a close range the problems which farmers face although their advice is often taken seriously as the basis of decision making. But whether that view cuts across all options is quite doubtful given the structure of the specialized program which excludes certain options such as Agricultural Engineering from rural studies.

However, the issue on the appropriateness of technology was commonly seen only in functional terms without heeding to the related issues of environmental degradation. But this did not suggest that the students were totally unaware of this relationship but they preferred to look at the issue from a technicist point of view rather than from the angle of sociology of development. When probed further on the environmental degradation that is noticeable everywhere, the majority feeling was to accuse false government planning which failed to distributed resources optimally as well as lay emphasis on population growth. As one respondent summed it,

> Okay. I think for environmental degradation, say for example, soil erosion in places such as Bugisu in the East or Kigezi in the South West, you will find that these areas have more than their carrying capacity, in other words they are allowed to grow beyond the population which the land resources can support. Okay, let's us say that a man has four sons and only four acres of land, so when these sons are grown up and marry, the land will be sub-divided between them. So you find that the land which already fragmented gets even more fragmented as also becomes overworked and soil erosion gets in to wash the top soil away. You find that the fallow becomes shorter or totally missing as the same land is cultivated from time to time. So I would say that the problem of too many people in one little area caused the problem of environment.

In a similar vein, a respondent in one expressed the following concern:

> Okay, when you look at this rural areas you find that there is very very little vegetation left, everything has been cut down for burning charcoal for firewood and you find that the ground is just bare. The soils are now exposed and when rains come this is washed away easily. And then there is lack of proper methods of protecting the soils through for example terracing on hilly areas. So you find that with increasing population the land cannot support the population.

When probed on cattle "overstocking" in some parts of Uganda such as Karamoja in the North-East and the districts of Mbarara and Bushenyi in the South in which the stock of animals is said to far exceed what the environment can carry, again the majority of respondents drew parallels with the human population. For nearly all respondents, there is need to cut down on the number of people as well as the cattle in overstocked areas. As one respondent put it,

> In places like Ankole, you find that one man with a big herd of cattle which are grazed anywhere such that when you have many farmers in the same are the pasture is not enough. In fact, the government has been trying to encourage cattle keepers in this area to keep just enough cows instead of this big herds. But you find that cattle keepers still own many cattle.

All responses on the environmental degradation were couched within the framework of matching the resources available with the population. This was a compelling argument on the part of the students as recent conflicts which are well known in the Central and Western parts of Uganda would indicate. For example, the students certainly are aware of the conflicts between small-scale farmers and big land owners which has preoccupied the attention of the NRM government since it came to power. Cases where farmers cut fences of the wealthy in order to gain access to the pastures are quite widespread. However, most respondents were apparently unable to make the connection between poverty and environment degradation (Redclift, 1984).

In all responses, there was no mention of the relationship between the use of agri-chemicals and environmental degradation brought out. It is worth noting that in the research reports to be analyzed towards the end of this chapter, all students without exception who conducted agronomic surveys in particular accused farmers for utilizing what they called "primitive" methods of farming to produce food. The remedy suggested by all was the use of fertilizers, herbicides and pesticides according to the experience of the "green revolution". Similarly, the Master of Science theses on Agricultural Economics also overwhelmingly recommended the adoption of "modern" methods of farming to increase output for export. As future policy makers their attention was closely focused on the establishment of a diversified modern agriculture to be dependent on modern technology. The ecological dangers which are associated with agricultural modernization were omitted.

In the seminal work by Rachel Carson (1962), she drew the attention of the world for the first time to the dangers facing human survival as a result of the indiscriminate use of chemicals in farming. The impact of her work has been important is shaping environmental policy in many parts of the world. As environmental movements and critical ecologists have pointed out, modernization strategies in agriculture have for a long time contributed to a host of environmental problems such as chemical pollution, soil degradation and human diseases. The chemicals may pass mysteriously by underground streams until they emerge to mix with air and sunlight to kill vegetation, sicken cattle and work unknown harm on those who initially drunk from pure wells.

While some legal action has been put in place in North states to check the use of DDT, for example, this still continues to be produced for export to the South and adds to the damage already created by illegal dumping of industrial wastes (Commoner, 1990). For several years societies with imposed economies and technologies have witnessed unmeasured ecological destruction with serious repercussions on crop yield and human survival. What is most daunting is that the masses have been lured to believe uncritically in the mission of "scientific progress" according to the image already shown by the North. This would appear to explain to a large extent why students prefer to ignore the deleterious effects on the environment arising from the application of fertilizers, pesticides and herbicides.

In sum, proponents of the modernization paradigm prefer to see the problem of environmental destruction in terms of high population growth rates as well as lack of knowledge among the farming communities rather than through the political economy approach. Missing in their analyses often are issues associated with the social relations in the organization of production which cause the marginalization of large segments of the populations and environmental decay. As stated earlier, analyses based on political economy of development show a more promising chance for a better and more comprehensive understanding of environment destruction. For example, in the specific case of "overstocking" in Uganda, Mamdani (1985) traces the problems facing the pastoral area of Karamoja to the colonial policies which not only deprived the people of traditional farming methods but also initiated cattle-rustling between neighboring ethnic groups. Thus, in his analysis, the land degradation is related not to nature and geography but to the establishment of a dependent economy based on primary commodity production. Before examining the evaluations made by the students regarding their educational experiences in the program, it is necessary to analyze their views on the crucial issues and problems related to women in development.

4. 5 **Students' views on Women in Development**

Women in development is to be analyzed in the framework provided by the stated policy on national development contained in the documents such as the Agricultural Sector Memorandum (1993). This document as a joint production between the World Bank and the Uganda Government outlines the strategies and plans of NRM in combating poverty and underdevelopment. The view promoted in this document is akin to the "female farming systems" approach of Ester Boserup (1970) which perceives women as the backbone of agricultural production in South societies. This view also seeks to challenge the "monopoly" which men are alleged to have enjoyed over the so-called modern sector activities. In effect, the development strategy is directed at incorporating women into commercial agriculture "for their own good" and to minimize suffering through the introduction of "labor-saving devices" so that "leisure time" may be created. Similarly, the Uganda Government is concerned to increase access to educational institutions including universities as corrective measures against the social injustices suffered during previous political regimes.

To justify the interventions in women in development, most international agencies as well as local governments rely on the statistics that tell the relationship between women and men in the social production. To accomplish this, the Uganda Agriculture Sector Memorandum (1993) states as follows:

> A recent report on the status of women in Uganda places rural women, appropriately, at the "center of agriculture". In a primarily food-based agricultural economy, women provide 68% of the labor for food crop cultivation, 53% of the labor needed for such crop cultivation. Some 94 percent of employed women gave their main occupation as agriculture, compared with 82 percent of men. Women's responsibilities to the rural household do not end with crop cultivation, however. The National Household Budget Survey notes that primary activity of 72 percent of economically active rural females-excluding students or those unable to work involves attending to household duties. This compares to 20 percent of economically active males, whose primary, whose primary activity (60 percent) is as "own account worker". (34-35)

The main problem with such statistics is that they are highly doubtful. Such information provided by international agencies and local governments for societies like Uganda which had barely emerged from persistent civil strife are never likely to be reliable and therefore ought to be used with caution (Berry, 1984, Kuttner, 1984, 1985; Raikes, 1988; Burkett, 1992; Samoff, 1991). Due to the inability by international agencies to work without statistical data, it is likely that quite often these data are "concocted" to meet the needs of standardized action. The data become even more suspect when one considers that even the United National System of National Accounts (UNSNA) always fails to work with accurate information as Waring (1988) aptly indicates. In addition the data usually excludes from analysis the contribution to the economy from vital activities related to development such as peace, environmental care and household work but which cannot be quantified with ease.

As will be stressed later, the main purpose in challenging the statistical obsession of international institutions is not to deny the increased burden which women in Africa today face but to draw out attention to the important point that such data help to rationalize policies of South governments which draw women to the exploitative labor economies as cheap labor. Also, while the organizations pretend to challenge patriarchy by extension of educational opportunities to more women, the real intention appears to be unrelated to liberation but has more to do with producing a docile and cheap labor force socialized through the dominant North-South school systems. In sum, students of agricultural science would need to be aware of the underpinning assumptions of policies that purport to benefit particular groups in society such as women.

The evidence provided by the students tallied with the data gathered from their instructors as well as administrators to the effect that the issues and problems of women in development never receive emphasis in their programs even in the relevant courses like Rural Development and Agricultural Development. We should note that the recent emphasis placed on this subject in the various training programs has arisen from pressure exerted on universities, colleges and other training institutions by groups who seek to challenge the status quo. Central to their concerns is the need to recognize women as a social group that is more oppressed and marginalized in the modern economies directed at private accumulation of wealth. In Uganda, the NRM has set up a government Ministry responsible for women affairs without the pressure from any social group but the agricultural program has been slow in responding to this need. From the investigations that were carried out, there was a general feeling among the instructors in the program that the issues are of little concern to them as professionals. Despite this neglect for women in development, students had important things to say on the matter.

When queried on whether they felt that their program should reflect issues and problems of women in rural and agricultural development, all responses were expressed in the affirmative but couched in the modernization framework. According to one respondent,

> I personally would support the of women in development because especially where agriculture is concerned, if only these women were helped and given enough knowledge and may be backed up may be by some kinds of loans.

Another respondent who provided information said the following:

> I think so because first of all when you look at the rural area, it is women who contribute greatly towards social income in rural areas where the rural communities earn their living. It is the women who contribute a lot, so they spend their time in the garden, men do not do much of the agriculture, they wait till the harvest, there is where they come in. When it comes to real practicing of agriculture, it is mainly women involved and their children.

From another respondent, an equally affirmative response was given although he felt that care must be taken to take a holistic outlook:

> It is a good idea except may the extent, it might become a bit negative. In fact if we overemphasize, we might forget men again. According to our population you find that the ration of men to women is high such that if we only concentrate on men then we might lose a lot of labor which women would give in form of manpower.

One woman who responded to the question provided the following information

> If you consider agriculture right from the grassroots, it is the woman you have to consider in your areas being a beast of burden. I think it is okay. Some of these donor agencies when they consider animals, they give the animal to a family, okay the animal is under the control of a woman. That one has taken off in most parts of Uganda and it is doing so well. Simply because they give it to the woman, they teach how to handle the animal.

In some instances, the students pointed out that the number of women being enrolled in their own programs was going up while that by men remained almost constant. This was also the view expressed by their instructors in response to the issue of women in development. In other words, the male students tended to view themselves as being in solidarity with the women struggle but without questioning their own position in the larger economy of power and privilege that largely relegates women into the lower social positions.

Looking closely at the above responses, it is evident that the students were fully aware of the recent emphasis on the important role of women in development although all were unable to approach the issues from the perspective of political economy of development. It would appear that the recent actions by the NRM to stress the issues pertaining to women and to establish a quota for parliamentary representation could have played a significant role in shaping the attitudes of the students towards women in development rather than any systematic exposure to the issues from the program of study.

The responses regarding the involvement of women in the economy creates myths which need our close scrutiny. The first myth is that raised by Whitehead (1993) when she argues that no one, including international agencies really has a reliable record of the extent to which women are involved in development. The international agencies have exaggerated the role of women in development as a strategy to railroad through policies under structural adjustment program which have added to the misery of women in development. The Agricultural Sector Memorandum (1993) clearly outlines the need to integrate women into the modern economy and to extend social services such as education. The second myth views South economies as basically "female farming systems" as presented in the study conducted by Boserup (1970). As Whitehead (1993) points out, rural production is conducted in an integrated way in which the activities of men and children complement roles performed by women. What many people tend to ignore, probably due to little exposure to rural living, is that depending on the circumstances, a son in a family may have to stay out of school for a few days looking after cattle and performing other chores in order to release parents to accomplish other work.

Thus, the data provided above to justify the emphasis on women in development ignores the realities of the rural economy and also bypasses the questions of power. It is important to note the nature of sexual division of labor which positions social groups differently in the labor force but within particular historical and cultural specificity. The proponents of the modernization paradigm in agricultural and rural development will not only marginalize women in capital accumulation but also refuse to reflect such concerns in programs of study. The agricultural science program has certainly been slow to respond to the needs of women in development.

When queried as to why women were in general poorer than men, again the responses were couched in the modernization paradigm. From a female respondent, the following answer was given.

> Okay, I will say a woman should be given a more dramatic role because they are main producers of agricultural produce, they produce more than 70% of agricultural produce especially food crops. And then on top of that they do not have the educational background and knowledge because even the agricultural staff by the time they get to the village level to the farmers, they normally talk to the men thinking the man is the head of the home he should get information, the woman is left out. And yet in most cases, the man will not tell the woman what exactly the agricultural officer said so much that *she works with experience, it is not scientific*. And then there are sociocultural restrictions like she cannot own land or get a loan. (*italics added*)

That extension workers normally get to men rather than women was a valid observation by this respondent. This arises from the historical legacy bequeathed to us in which production of cash crops for export was the responsibility of men and consequently extension agents had very little, if anything, to do with women. It needs to be emphasized that cash crops were identified with men purely for purposes of accountability to the coercive state rather than as any measure to benefit men as a social group. Also, there is need to stress that although men were directly associated with cash crops, women participated greatly in they cultivation as well as in related activities in the economy. This observation is useful in dispelling the myth of "female farming systems" and clarifying the issue of tying cash crops to men. However, the respondents tended to reaffirm the status quo by the argument that extension agents should change their behavior and focus on women as well. What she forgot was that in the first place, although extension agents go to the men, they are not interested in the crops that would sustain the needs of the family. Secondly, crops like cotton which are the concern of the extension agents have low returns and have also impoverished the soils as the experience in cotton-growing areas shows. There was nothing really to be benefited by men or women from the advice of the extension agents.

The response also focused on education as an important remedy for rural poverty and underdevelopment. As I have already pointed out, although the importance of education in national development cannot be discounted, there is need to raise questions regarding the content and the methods used in the instructional processes and also to examine closely the relationship between schooling and the wider society. As critical analysts have pointed out, the colonial education promotes stupidification rather than critical literacy and could not therefore be regarded to be serving a good role in national development. And besides, before any education could be said to help society, it is important to examine also how different social groups are positioned in the economy of power and privilege and how women are marginalized in that process. The students were unable to conduct such analyses based on political economy of development.

In another remark, one student failed to see how the modernization paradigm promotes attitudes and beliefs which prevent them from taking rural assignments irrespective of gender:

> Yes, okay one thing I have to say is that women, okay for example when you take an institution of learning like Makerere here there are so many women coming here. They take courses related to agriculture, okay B.Sc. (agriculture), when they go out there, they do not want to go out to rural areas to help their poor women. There was research which was carried out by the Head of Department of Agricultural Extension & Education, incidentally, he is an outsider, he is a foreigner, he carried out research in Uganda to see the number of women employed in agricultural extension... but he found that there were very very few women who were employed there in the extension service, most of them are in town, when they are posted to villages, they refuse to go there. And so you find that even the middle class women who are driving Pajeros around there are many okay, they are trying to call for women participation, trying to uplift the living standards of the rural woman but for them they are just making it, somehow they are trying to trap money from these donors because these people have a lot of money if one comes up with a program relating to women, those people are willing to release money... otherwise the rural woman has still been left out.

In examining the quote above, it is quite evident that the respondent sees the problem in terms of the conflict between women and women rather than as relations of power (Bernard, 1987; Boserup, 1970). Accordingly, if educated women turn to rural assignments the implication is that the rural condition in general would begin to change for the better. This assertion leaves a lot to be desired especially because the analysis does not addresses the issues of subject positioning in the social order. It is quite interesting also that the respondent took for granted the research interests of the USAID "expert" in Uganda. This was not surprising especially for students in Agricultural Extension and Education openly boasted of having obtained the best education and training under the guidance of a "foreigner". The key to understanding this beliefs lies in the modernization curriculum itself which associates progress with Westernization.

While ascertaining the number of women employed in the extension service may itself be harmless, what students fail to know is the paradigmatic thrust of the USAID researchers. As will be illuminated in the next chapter, USAID was invited by Uganda Government to study the agricultural system and make recommendations. Students failed to notice that in the Agricultural Sector Memorandum published by the World Bank for Uganda, there has been a strong emphasis in incorporating women into the labor force through agricultural extension. The idea that such research could be geared to making women available as the "reserve army of labor" is ignored (Hanrahan, 1989). The availability of women to conduct the transfer of technology to rural women and men is very much needed in that process. This constitutes the true research interests of the USAID "expert" referred to above.

Almost all respondents accused cultural customs for keeping women in poverty by depriving them of land upon which farming could be improved. As stated by one respondent:

> Even the culture itself. You find that for example someone saying that a woman is not supposed to have land. Now if a woman does not have land and she is given to work it temporarily, she will not have the incentive to work on that piece of land effectively.

The important point to note is that the proponents of the modernization paradigm view underdevelopment and poverty as the outcomes of the internal characteristics of the societies such as culture. In many cases, they accuse the 'lazy native" for the alleged failure to work hard and take advantage of the opportunities in the economy (Alatas, 1977). In the quote above, what the students failed to realize is that in precapitalist cultures, land was owned communally and the present land tenure systems are not a product of African cultures but were imposed by colonial capitalism. For Uganda, Mamdani (1976) provides a well articulated historical development of the economy and the emergence of a new land tenure system in that process. No students who interviewed were able to articulate issues of poverty and underdevelopment within the context of political economy of colonial capitalism.

In sum, both male and female students understood the poverty and underdevelopment facing women as a social group within the modernization framework which blames the individuals and their cultures and places uncritical faith in the role of education in overcoming the problems. Even where strong support was given for teaching programs which could raise questions related to this subject, it would appear that this was motivated by the public pedagogy of the NRM government rather than from the program of study. What is more, while there were concerns of that nature, the students were reluctant to question their own positions in the social order and therefore failed to discuss the marginalization experienced by millions in the rural areas and slums.

4. 6 Pedagogical and Curriculum Issues

The agricultural science program which had previously lasted for three academic years was extended recently by an additional year. The evidence gathered from the interviews from various groups as well as the Visitation Committee report defended this extension on the grounds of providing additional time to conduct practical work. It was generally argued that employers, the main one being the government itself, had raised doubts regarding the quality of graduates that were being turned out from the program. It is also important to note that various groups interviewed on the issue of program extension failed to challenge the modernization assumptions which have traditionally informed the entire program but instead blamed the Uganda Government for the failure to deploy additional funds to make the practicum possible.

The first group of students interviewed on June 20, 1993 were asked to express their views on the extent to which the extension of their program by an additional year had improved things especially in regard to the practicum as stated in the official documents. The consensus was that no improvements had been made but instead more theoretical work had been introduced. One student in Crop Science doubted the need of the additional year for rural development but mildly suggested that it could perhaps be useful for Crop Science option while adding that lack of finances had hampered it.

> I think as far as rural development is concerned, I think this four year program is not very important. Only I would say that it is important for crop option because it is mainly in this option that in the fourth year that a lot of emphasis is placed on research and then what is covered deals with crop production which I think if it is supported in one way or another it would lead to development as most of these students would be absorbed in research stations.

One respondent in the same group bitterly complained against the extension and pointed out how theoretical courses had been added instead of practical work. As he put it,

> With us in agricultural economics Department, the first two years is general knowledge. We do not learn a lot of agricultural Economics for these two years. We just relegate everything they bring, crop, agricultural farm economics and what not. In summary those two years for those of us in the Economics option I will talk from that an angle because that is where I am. When you go you find that you really know nothing in those two years, they teach you everything. Now in the other two years we spent time on things which are relevant to Agricultural Economics but the problem is that they dont, they are not run the way they are supposed to be run because they will say that we shall go to the rural area but you find that you do not go there, all that 10 weeks you do not go there. So you find that you cover a lot of book work. Already what you can say if you read their program in the book which shows how they should teach it, if they can teach that way, I think we can finish the program in three years and then they can allow you to work in the field for the fourth year. They teach all their book work, they finish within three years and then in the fourth year they send us to the field under their supervision.

The views above were not disputed by anyone in the group as another student accused the faculty administration for the failure to provide funds to conduct research promised in the extension. This was an issue which every respondent interviewed did not fail to raise.

> I think on top of that they should release enough funds for running that program because most of the excuses they give us is that there are no funds for sending us to the field for practical work because I remember in our fourth term of our third year we were supposed to spend five weeks in various parts in Uganda but finally when the time came they told us that there were no funds so we could not go there so we could not do our practical skills in various parts in the country.

It is evident from the first group of four respondents that there was bitterness for the failure to conduct practical work plus some awareness of the need to do it in rural areas rather than in the university Farm at Kabanyolo. The issue of lack of funding was also an item of a major concern in the Makerere University Visitation Committee report as illustrated in sixth chapter of this work.

While the four citations above do not call for anything new for the agricultural science curriculum but simply focus on administrative failures, one respondent felt that the program was in general unsuitable for the Ugandan conditions.

> Basically I do not see any change apart from the fact that there is an increase in the number of years. And I would say that this increase in the number of years does not make any big change because I personally would

> think that at the level where we are in Uganda agriculturally does not need any detail which are going into such that may be for people who are going to work in research stations but not very many of us are going to work there. May be the best I have seen is the introduction of the Extension Department whereby it has tried to emphasize transmission of knowledge to the farmers.

Two issues merit close attention here. First, the statement made above draws attention to the student's feeling about a specialized agricultural curriculum. As argued also in the next chapter, specialization and fragmentation which are central to an instrumental curriculum design deprived learners from gaining a holistic understanding of social reality (Piccone, 1987; Ortega y Gasset, 1964; Macedo, 1993). As the statement above implies, the agricultural science program outlined in the Handbook is clearly geared towards specialization to which the respondent objects. This was an important albeit minority insight from the group.

Secondly, while the critique of the specialized curriculum falls within the critical paradigm, the respondents reverts to the modernization paradigm in his argument which indicated that such designs could perhaps be suitable for research scientists. As Timberlake (1985) argues, one major weaknesses in crop science research is related to the lack of a critical understanding of local practices which can not be learned without a systematic exposure of the scientists to rural studies. Also, the respondent fell back into the modernization paradigm through the failure to see the one-sidedness of the extension programs in the Faculty. This is particularly evident in the emphasize laid on the "transmission" of technical knowledge to the farmers. I shall return to this point in later analyzes.

When queried whether they get any contact with rural farmers during the training at the University, again the consensus in the groups and among individuals was that this never happens. They pointed out that in their view, the teaching is unrelated to rural concerns but is geared to urban needs. As one respondent summarized,

> We do not have contact with rural farmers who are supposed to be in rural areas. And when they are teaching, they put a lot of emphasis on things in towns. Because when the man teaches you about finance, they talk too much about finance in the bank, here in town. You really do not understand what takes place in the economy.

Similarly, the respondents bitterly complained about the methods of teaching adopted by the instructors. They said that

> The program the way it appears in the book when you look at it properly is appropriate but when it comes to teaching, that is where problems come and instead of practical work they give us more and more book work than what really we are supposed to do.

Another respondent related his disappointment with the program in the following words:

> The problem with our kind of training here is that they always emphasize book knowledge and nothing is given to the practical part of it and yet what is important is the practical part of it and not just accumulating a lot of book knowledge. Just getting the knowledge does not means that you can use that knowledge. What we are failing to understand is that unlike European countries whereby people go to the Faculty of Agriculture with the intention of using that knowledge for agricultural business, for us here you may just find yourself in the Faculty of Agriculture not because you wanted to use that knowledge to help the farmer but you are there, you have to do agriculture. And some have lived in urban areas, they have no orientation to small-scale farming which is dominant in our society. *He* comes here , *he* is kept in class for all the four years and *he* goes out. *He* is not better than the farmer, *he* can't even help that small-scale farmer because he is not used to that kind of situation. And he does not know where to start from.

Some of the issues raised here were also the concerns of the instructors. For example, it was pointed out by both groups that the social origins of the students are urban-biased and interfered greatly with the development of agriculture. As shall be shown in the next chapter, although the problem was correctly defined, the instructors failed to make appropriate interventions in the curriculum. They continued to embrace the same old technicist curriculum of the American School.

It is important to note that the students never called for anything radically different from the liberal/technocratic curriculum design as the issues revolved on the balance between theory and practice as a common concern to science programs (Corlett & Macfarlane, 1989; Wout van den Bor, Shute & Moore, 1989). In fact, as already indicated, they had little trouble with the design as it appears in the Handbook. The responses which follow are also structured along the modernization of agriculture.

> O.k., they are supposed to have a lecture from 9-12 then in the afternoon we are supposed to have a practical, either to go the field or to the lab but you find that most of them come for lectures and there is no practical work. They call you again for lectures to cover more and more rather than practical work. In summary we read more and more books and not practical work.

The issue here was the poor balance between theory and practice which all students without exception raised. The influence of modernization paradigm leads students, instructors and the bureaucrats to view this imbalance in terms of lack of funding that has become characteristic of many situations in the South but who also do not see the need to alter the training in ways that could, for example, draw on the expertise and experience by the NGOs and peoples' movements. The authorities concurred on this issue while pointing out that the government needs to make timely payments in order to enable the university to make purchases on time and to transport students to the field. In no instance was there any indication of conducting the research work in a different fashion from the current practice.

Furthermore, in terms of pedagogy, evidence that was available indicated a preference for top-to-bottom approaches to teaching under the full control of the instructor. As one female respondent summed it, " I will tell you that there is very little interaction between lecturers and students. It is usually one-way traffic", implying that students play a passive at the instructional sites. It is important to stress that even liberals criticize this method of teaching but do not substitute it with anything new as they shy away from the critical pedagogy (Daane & Fanou 1989; Leys & Shaw, 1967; and Shute & Moore 1989). Central to their argument is that the "lecture method" fails to encourage students to think for themselves in an independent way. As Leys & Shaw (page 16) write:

> ...the method of teaching, often heavily based on lectures, and an examination system consisting of one written examination a year, tends to encourage parrot learning, unsustained effort, and the accumulation of knowledge for passing examinations with too little development of the problem-solving abilities of the student and their practical applications. Students may never feel that they are being asked to find something out that anyone else really needs to know, and so will not only miss the heightened motivation that gives rise to, but will be less able to find things out for themselves or others in the job.

The traditional technocratic methods of instructions show many weaknesses for which the liberal critics have commonly failed to prescribe viable alternatives. First, they focus on improving the relations in teaching between students and instructors in the teaching-learning process by paying attention to the "individual" needs of the learners based on psychological learning theories for adults. Issues regarding the social marginalization created by the economy are never the concern of such theories which treat all learners as being exposed to the same social conditions. The real trouble with the traditional technocratic methods of teaching is that they fail to question the attitudes and skills which learners from diverse backgrounds bring into the classroom. As a result, the crucial relationship between power, knowledge and culture which are central to critical literacy is never allowed to develop during the learning process (Giroux, 1981; MacLaren & Giroux, 1987; Freire & Macedo, 1987). Thus, the personal histories and cultures of the learners are not allowed to surface in the instructional sites which assume in advance the superiority of the instructors. Critical literacy would seek to provide students and the instructor with the opportunity to relate their social status with what is going on around them in order to develop empathy, compassion and solidarity with millions who have been systematically excluded form schooling.

As Giroux (1988) has eloquently argued, teachers or instructors need to be viewed within the critical paradigm not as a technicians charged with executing technical tasks but as "transformative intellectuals" who are charged with the duty of conscientization in order to interrogate the social order. Hence, critical pedagogy contributes to revolutionary educational theory through its emphasis on the dissolution of super ordinate-subordinate relationships under conditions in which the knowledge of the learner is acknowledged as authentic. The "lecture method", on the other hand, proceeds from the assumption that learners know nothing on their own and therefore need to be brought up to mature in the act of knowing. Just as the colonial master's role was to civilize, legislate, instruct and sometimes war against the subject, the instructor likewise must take full control of the learning-teaching situation to direct, instruct, reward and deny reward to learners in the process of creating mature adult scientists. The absence of any acknowledgment for the kind of things students already know about rural farming also implies a neglect of what farmers already know about farming.

Again, it would be important to note that although the students were unhappy about "one way traffic" method of teaching, this does not suggest that they were calling for any revolutionary methods of teaching geared towards emancipatory action. All they wanted was more participation within the traditional methods of teaching and learning. Asked whether they felt that farmers should be brought into the classroom to assist in the teaching, only one respondent in the Agricultural Extension option endorsed the idea in a general way as follows:

> Yea. When you talk of bringing farmers, I think it would make it more practical. You bring them from the countryside, take them to the Faculty, allow them to lead a lecture, that kind of thing.

For the rest of the students, their training could be improved through more exposure to the villages rather than bring farmers to the University. In general they evaded the issue of inviting farmers to lead classes in the University. As one put it,

> I think what we can do is to emphasize the practical part of it. Students should spend most of the time in the field trying to get used to the situation in our set-up here and trying to help the farmers such that okay, they come back to their faculties to find more knowledge where they have found a problem and by the time they come out as graduates they are able to help the farmers.

The above insistence is not surprising since the extension courses stress a one-way flow if information from the scientist to the farmer. Therefore, students were in general uncomfortable with the suggestion for the two-way flow of information which could radically change the teaching/learning context.

In response to the same issue, one extension methods instructor objected strongly as follows:

> Well, to some extent, like myself as an extensionist, the way we are bringing farmers into being teachers is for, example, taking our students to the farmers and they listen to the farmers or at times having contact farmers, have demonstrations on his plot and then other farmers can copy from him, farmers can copy from fellow farmers.

Again it clear that the top-to-bottom flow of knowledge is recommended as the right approach to knowledge production by using "progressive farmers" (Rogers, 1983; Benor & Harrison, 1977; Gatere, 1988). The views from the instructors on extension methods clearly indicate that students are prepared on the modernization paradigm for rural and agricultural development. The alternative paradigm in extension methods, as advocated by critical analysts are ruled out (Mazrui, 1992; Kassapu, 1979; Chambers, 1983). I will also show in the next chapter how a similar orientation is promoted in the examination questions which were set for this cohort of students as part of their final evaluation.

Further evidence for the top-to-bottom methods of agricultural extension was provided by the following quote obtained from an extension student. The dominant interest was still to "go to the rural areas" without calling for the reverse to occur.

> Particularly for me who has taken Agricultural Extension option, most of the courses are focused on helping rural people improve their farming practices. For example, in the third year we hard Agricultural Economics-related courses like those I have already mentioned such as Agricultural marketing, Agricultural development, Cooperatives and Credit. We have such courses and actually in some of the courses we looked at how agriculture can be developed in rural areas how there can be reform in the land policy so that families without land can have land and actually carry out agriculture... *The problem is that there has been lack of mechanism for taking this research information to the farmers and these farmers have remained with their primitive I may say backward practices.* There has been no mechanism for availing this information to this people. So we had

> extension methods. *This course enabled us to learn how to take the research information to the farmers.* So we also had some courses in visual aids because basically we in extension we are almost teachers , we teach adults and visual aids are very important when teaching adults because most of this people have not gone to school. So when you are teaching, you cannot just give lectures you need to use some of these materials. (*italics added*)

The perceptions held by students about farmers as "primitive" and "backward" also predominate in their research reports which, following the modernization paradigm, identified the "stupidity" of farmers as an impediment to agricultural and rural development. As noted in the literature review, social change for the "less developed" societies is projected to follow a unilinear approach along the experience of North industrialized nations which are said to have reached a "developed" stage. To them, South societies are socially typed as "primitive" and "backward' whose only salvation lies in the acquisition of "evolutionary universals" which in reality are value-orientations associated with the Western consciousness.

Edward Tylor (1958) captures the notion of "primitive" in the following words:

> ... the early condition of man... can be regarded as a primitive condition... this hypothetical primitive condition corresponds in a considerable degree to that of the modern savage tribes, who, inspite of their difference and distance, have in common certain elements of civilization which seem remains of an early state of the human race at large .. the main tendency of culture from primeval up to modern times has been from savagery towards civilization.

The point is that agricultural education and extension is based on assumptions of superiority of the scientists over the "primitive" masses who are depicted to show little inclination to abandoning their practices without massive intervention from the educated "modernisers" of their societies (Chambers, 1983; Rhoades; 1984). In this context the possibility for a genuine appreciation of the indigenous cultures and methods of farming is diminished considerably. It is upon those assumptions that the pedagogical and curriculum practices are structured.

When prodded further to consider the suitability of the curriculum broadly defined to include the learning of technical subject matter as well as experiential learning outside the classroom for rural development, the important role attached to specialization in the senior years of the program was commonly emphasized. Most felt that the general courses in the first and second years were in fact of little value. One respondent in Agricultural Education summarized this as follows:

> When we came to fourth year, where there was real specialization because in the third year we used also to have courses in various departments or branches such as Animal Science, Soil Science, Crop Science. But in fourth year we stuck to our specialization. We had courses in curriculum development and training methods so here we got exposed to how to develop a curriculum for adults.

Critical analysts already referred to above object to specialization which tends to permeate through most programs in higher education in modern and fragmented societies. Their common position is that a specialized curriculum is technocratic and leads to a narrow mastery of knowledge while leaving the students unable to interpret social reality in a holistic way. This instrumentalist curriculum is directed towards mass production of technicians, not thinkers. As Piccone (1987:7) puts it with regard to universities in the North:

> It should not come as a surprise, therefore, that what is being discussed today as the crisis of academia is the result of naively expecting universities to develop according to their ideological apology, rather than in terms of their *de facto* social mandate to produce a new type of work force and citizenry: technically competent specialists whose general ignorance makes them politically passive and thus suited for the post-industrial society smoothly run by the new class of bureaucrats, technocrats, intellectuals, and specialists in general.

It is important to recall that a number of students and instructors were of the view that being "technical people", this study on rural development did not apply to them. In several instances, instructors made reference to the Department of Agricultural Economics who were seen as the relevant group for studies like this. This was a testimony for the modernization paradigm which lays stress on specialization as cited above.

Still on the issue of specialization, while policy documents such as the Agriculture Sector Memorandum (1993) insist on extending "labor-saving devices" to women, the Faculty Handbook clearly reveals that students who pursue the Agricultural Engineering, who would therefore be responsible for the development of such technologies are denied the chance to critically learn about society in general. As the next chapter will show, the science agricultural curriculum devotes very little time to studies on social development which are confined to a small number in the Extension and Economics options while leaving the rest of the group out. In faculties such as Veterinary Medicine which ought to be rural-based too, hardly any course is closely directed towards the development of a critical understanding of rural poverty and underdevelopment. In fact, the traditional curriculum design based on specialization permeates throughout the University based on the ideas of Enlightenment geared to reproduce the status quo.

In all the groups the students enrolled in Agricultural Extension appeared to be the most satisfied of the specialized program. Their hatred for the first two years of study was remarkable. As one summed it,

> Sometimes you just have to stay behind and sometimes *he* comes but practical times are not utilized efficiently. Most lecturers do for the sake of finishing, just for the sake of having a practical. You find that students may not understand well during the practical time. And some of them are irrelevant because most of these practicals are actually irrelevant because most of them in the first and second year which are laboratory practicals, well in agriculture practicals are supposed to be carried out in the field but you find that in the first year they give you this basic science before you go to the applied part of it, courses like Biochemistry. You have to go to the laboratory but you find that the practicals which were being done in 1969 are the same practicals in 1993. So they just continue to photostat these papers and you find there 1969. Some of the units are no longer being used in the metric system, they are these imperial units.

In a highly engaged manner, the same respondent articulated the following views in contrast of the first two years of the study program:

> However, during the third and fourth year the situation was not bad. The group had become a bit smaller because in the first year we were studying with Food Science and forestry together most of the courses. But in the third year we had separated and you could have a particular course for a particular option, so we were very few and the material that was presented was not so bad. Sometimes they could even use overhead projectors, sometimes you could get handouts because of this lack of these textbooks, they photostat materials for us. *For us in particular, we have been under a foreigner who has been interested in making his pioneer students in his program a success*. So he wanted to make a change so that when we go out we have been well trained because persistent accusations have been made that agricultural graduates are not practical. They are more classroom-oriented, they are not agriculturists who can actually teach farmers. At least for him he tried to expose us to all that. We had practical demonstrations within the classroom and outside. We had field training, we were sent to the field to involve ourselves with extension there. (*italics added*)

The Final Report of the MFAD program carries a list of its "achievements" in curriculum development for the entire Faculty. With regard to the introduction of new teaching methods (page 54), it reads:

> All of the academic staff are able to teach any undergraduate courses. Assistant lecturers (TAs) feel confident that they can master the concepts that they are asked to present the undergraduate students. A variety of teaching techniques and devices are used to present the lessons. This is

> very different from most of the courses taught at the FAF, which mainly use lecture technique and the chalkboard. (54)

The point in quoting the MFAD Final Report is to confirm what the respondent cited above reported on their program of study. This is particularly important as the role of USAID in program development throughout the Faculty has been tremendous.

In praising the training received under the MFAD program, another respondent in the Extension option interviewed separately expressed the following:

> There is an option called Extension. They are the people who did practical work in the third term in their fourth year. Each of them was assigned an area covering and there are 10 of them they are 9. Each of these nine students was sent to a particular area-one person was sent to the North one to the West another one here in the Central region, others in the East. *They were sent to talk to farmers and then find out their problems.* (*my emphasis*)

Similarly, one respondent reported his one-month field experience as follows:

> For me I was in Masaka. So we were exposed to the real situation and we reached there and we saw how things were being conducted. We had a lot to offer because the situation there is not the best. They are still following that old system that has failed to transform the rural farmer.

In summing up the evaluation of the laboratory-based practicum and the field experiences for the students in the Extension option in particular, three observations need to be made. First, the admiration for the specialized nature of the program is paramount despite what I have already pointed out as its shortcomings.

Secondly, for the laboratory-based practicum the instructors identified the lack of funds to be the greatest obstacle for the effective implementation of the programs. Since there are no indications that the Uganda Government will be in a position to avail the University more funds in the future, it would appear that the practicum will continue to suffer. The other option that may be available to the instructors is to define science differently from the North so that real problems are addressed directly. In other words, the scientists have to confront the issue on how science can be developed with mediocre materials so that valuable time is not spent in waiting for money from the state. Finally, although the students evaluated the program quite positively, clearly it is the modernization paradigm of development which predominates. The top-to-bottom approach to rural development is evident in the statements given above targeted at overcoming the "illiteracy and primitivity" of the rural farmers. Additional proof for this paradigm orientation is found in the reading lists and lecture notes which were silent about critical educators like Paulo Freire. The students were not aware of this alternative paradigm to agricultural and rural development.

In an in-depth examination of the practical work done in the University Farm at Kabanyolo during the second year, individuals and groups consistently reported that they did not think that it was relevant to a small-scale farmer in the rural areas. One respondent summarized the feelings by saying:

> Take an example whereby you are taken to Kabanyolo, that is where second year students are supposed to stay for their second year. I understand that year is for practical work, you may find that most of the practical work you do there are not relevant at all for a small-scale farmer in the village. For example, you are taught to drive a tractor, (*laughter*) in fact you never drive a tractor at all. We are taught how to calibrate a sprayer, in fact the man goes there and tries to explain without doing the real job. And then in the end you may never see the use of a sprayer. When you go to the village, you find a farmer who tells you he has a problem with his sprayer, you can't spray it.

The message given here, in conformity with modernization paradigm, is to lay blame on the instructors for their neglect of the practicum in agriculture. The we/they dichotomies often heard from the complaints by students regarding their educational experiences would appear also to confirm this feeling regarding instruction. What many fail to realize is the important point that in a program of study governed by the need merely to succeed in the final examinations in order to obtain the prestigious degree, genuine practicum geared towards the solution of social problems could never be a priority (Dore, 1976; Hudson, 1992; Oxenham, 1984). With or without undertaking the practicum, graduates are still guaranteed their lucrative privileges often associated with the degree and besides they are accountable only to persons with similar educational qualifications. A related but equally misguided view advanced by both the students and the instructors was that the practicum has been hampered by lack of modern teaching materials and gadgets. As I noted earlier, USAID in its self-assessment also boasts of having introduced better methods of teaching through the introduction of such materials to Makerere University without noting, as Cardenal & Miller (1981) do, that even with mediocre materials, the possibilities for effective teaching oriented towards social emancipation still exist provided that the methods and the learning condition are revolutionary enough.

In several instances as the next chapter is bound to show, the instructors made counter-accusations on students for their refusal to take full advantage of the second year to gain experience in practical agriculture. For them the main reasons for this attitude were located in the inappropriate social origins of the students which undermine a genuine interest in the profession. While their view has certain degree of legitimacy as shall be investigated later, what needs to be stressed again is that students know that what matters most for the one year at Kabanyolo is really to gain passing grades rather than learn something about becoming farmers. The students know quite well that farmers do not live in Kabanyolo from who they could hope to learn how to be farmers. So long as good grades could still be obtained by hiring farmers in the neighborhood or even some students who have a farming background, it would appear that some students would not see the need to bother with practical agriculture.

Continuing with the quotation above regarding technical inputs, the Agricultural Sector Memorandum (1993) has urged the Uganda government to delete subsidies for the farmers. As Hartmann & Boyce (1983) aptly note for Bangladesh, such policies have a tendency towards making agricultural inputs available only to wealthy farmers and hence exacerbating the preexisting inequalities. The point is that even though the students learnt how to use the sprayers at Kabanyolo such training would be useful for only a tiny segment of the farming community. Curiously, while in the North governments subsidize farmers greatly as well as protect the market for their produce, the opposite policy is pursued here where structural adjustment programs harshly impose conditions which require the liberalization of the economy for foreign investment (Raikes, 1988; Bernstein, 1990). More and more the structural adjustment programs are being directed help the propertied classes while the state is being used increasingly to create the "enabling environment" for private accumulation.

The agricultural science program which lays stress on "hands on" experience for one year at Kabanyolo Farm is a direct replica of the land-grant model of agricultural training in USA. The land-grant model was conceived under radically different conditions from those that obtain in South societies like Uganda. Fitzgerald (1981) and Brass (1982) conclude their studies by indicating that the land-grant model has never succeeded anywhere it has been imposed and call for tailoring practical agriculture to local conditions. Altbach (1972:549) makes that point too when he writes:

> The new land-grant colleges in developing countries are basically American institutions transplanted to foreign soil, but at the same time they are not fully American, since they often lack a high quality research component and are planned as training stations for middle level agricultural and other personnel. It is significant that research is precisely the component that made the large land-grant universities so powerful and important in the Unites States in recent years. Thus it can be said that the results of American policy are rather similar to the British colonial educational policies of the developing areas, often in forms somewhat

> below domestic standards and sometimes without much adaptation to local conditions.

By implication, if we accept that agricultural training should focus on enabling students to understand the social conditions of farming, then it is reasonable to conclude that such skills never get transmitted through the land-grant model of training. The neon-lit university farms like Kabanyolo are aimed at rehearsing farming rather than giving students a first-hand understanding of what farming life entails.

In sum, the evidence available from the interviews and supported by documents indicates that the pedagogical styles and organization of teaching and learning are influenced by the modernization paradigm. Unlike in the critical paradigm which emphasize bottom-to-top approach to organization and production of knowledge, here the asymmetrical relations of power is dominant with the students at the bottom of the hierarchy. In development terms, students have little opportunity to develop a critical awareness of rural poverty and underdevelopment and therefore could not be expected to acquire the necessary empathy and solidarity with the marginalized majorities.

Finally, the students were asked to make suggestions on what changes they would wish to see in the program of study. Apart from the widespread concern on the poor balance between theory and practice, there were other concerns too in relation to pedagogy and the wider social context in Uganda. One female respondent was particularly vocal on the congestion and the lack of systematic approach to the teaching of the program. She made the claim that

> In other Faculties, you find that the term is well scheduled, divided into five weeks or you have half course units and full course units. Half course units should be taught within five weeks. Whether a lecturer has finished or not when its is time he has to stop. So I would suggest to tell the lecturers to come on time because at times, you find someone has half course unit which is to end within five weeks and *he* starts after the third week and you either have a crash program for the two weeks or *he* just lectures you for two weeks and that is all according to his calendar time. And you never finish.

In the same interview, her friend interjected by clarifying as follows:

> What she is saying is that some lecturers do not give us course outlines. When it is time they just start anywhere... They should call a meeting and ask them to produce the outlines of what they are supposed to teach.

There were also important concerns raised by the two women in connection with the specialized nature of the program. They identified that the students in Extension are deficient in other aspects of farming.

> O.K.. I will give like a suggestion that whenever it can help. We have courses like Crop Science, Animal, Economics, soil and Extension. Especially the last option I can say that it would not be an option on its own. I am an economist as well as an extensionist, in other words Animal Science/Extension, Crop Science/ Extension, Soil Science/Extension so that by the time of going to the field, she or he is better trained as an extensionist while at the same time in that particular thing which she/he can expect to implement. When you just do extension, you lack some knowledge to extend.

In the forgone analysis, I have addressed issues related to the problems of a specialized curriculum but it was quite interesting to find a few students who expressed almost similar feelings.

There were also concerns expressed about the macro-environment in Uganda which was viewed as basically hostile to the proper implementation of agricultural Knowledge. As one respondent summed the views of the group:

> The way government pays those people who are going to rural areas, it is disappointing that people are not willing to go to work with farmers. And yet that is the area they were trained for. Because you can go there they give you a motor cycle which motor cycle will not be on the road because of lack of fuel. So you can not reach very many parts and also you find that you need to have some incentives but because there are no incentives, people are demoralized, salaries take three months without coming so that most people especially agriculturists who are in rural areas, what they resort to is drinking because they cannot help. You go to a farmer or a farmer comes to you that "my cock is diseased you come and look at them". So you go there and say you say "it is such and such a disease, it is such and such a pest" but you cannot help that farmer because you do not have the chemicals. So if there was a way these guys could equip those district agricultural offices you would find that they will be able to help farmers.

Here too, the statements reflect a top-to-bottom training approach in which the agricultural scientist is portrayed to possess invaluable knowledge for the farmers. In expired and poor economies which can not support the continued importation of chemicals from the North, the scientists, so we are told, "have resorted to drinking" while the farmers continue to feed the entire society including scientists. This observation made regarding the social condition of the scientist in rural areas is clearly supported by the daily experience in Uganda where many simply waste away. The main issue of concern is that the modernization paradigm of agricultural development does not bestow skills and positive attitudes in its participants to work and make sacrifices with the masses. In the research reports that will be analyzed shortly, this absence of critical concern for the plight of the rural poor is widespread and forms the real weakness of the science agricultural program studied here. The next pages shall take a brief look at what the students aspired to do graduation.

4. 7 Job Aspirations

One point that needs to be emphasized is the disenchantment which many students face following graduation as a result of absence of work to do. Except for perhaps the fields of Education and Human Medicine, no graduates from Makerere University can any longer hope to obtain employment immediately after graduation. It should be noted that this is a global trend which reflects the intense crisis the capitalist world economy is currently undergoing. When queried about what their future plans were, most students were quite uncertain as a result of this glaring social contradiction. In many cases, the respondents felt their program had not really prepared them to work effectively for national development even after securing employment. As one of them put it,

> And may be if they could provide the funds or capital one could open up a farm after learning how crops are produced such that as you know in Uganda, capital is hard to get especially if you are coming out of Makerere here so you need somewhere to begin with. And then also the ideology that we shall become agricultural officers, that is what everyone expects after graduating, you are supposed to become an agricultural officer. So that is what most people think we should become. We don't think we should become close to farmers because we are supposed to be in the office, that is the ideology right from the beginning.

Another respondent reported that although he had the intentions of becoming a farmer, he would need to the support from the government. As he put it,

> My ambition is to practice agriculture myself. But I know for the beginning it will difficult because I don't have the capital. So I may have to look for a job so that with time when I generate my capital, I can also demonstrate that I am a real professional in Agriculture and then the other people are likely to learn a lot when they see me in real practice,

In the same interview, another respondent said the following:

> Mine also is similar to this gentleman's ambition but I would also like to work in any sector because o.k it is agricultural extension but if you look at the program on agricultural extension, it can apply to any field where they emphasize knowledge in agriculture.

It is worth stating that some instructors especially in Agricultural Economics during the interviews also expressed the view that students need to be "facilitated" in order to become self-supporting. While that view could have some validity it would appear that given the nature of training from which the rural poor benefit little, farmers should be spared any additional burden. Also, note in the quotes above the degree of elitism exhibited by the respondents. There was hardly anyone who showed interest in working with grassroots organizations and peoples' social movements especially as a limited understanding of what these organizations actual do was evident.

The one respondent who expressed interest in working with rural people was also weary about the low pay associated with such jobs. As he put it,

> Personally I want very much to get in touch with the farmers. And then the other part that I am also interested in is teaching at the college, mostly in agricultural college. I would want to help students there so that they can learn practical agricultural knowledge and help farmers because the problem is that most graduates do not want to go the rural areas because they are associated with poverty, they want to stay in urban areas where they are highly-paying jobs. For me I actually want to go to rural areas may be the only disadvantage is that most of the these jobs are low-paying, that is the general problem in Uganda.

Clearly, it is the personal choice of the respondent to go to rural areas rather than a predisposition as a result of the program intervention. The respondent expressed worry over the low pay associated with rural assignment hence introducing doubt into that decision. From the interviews held with female students, two expressed strong interest in working with the banking system or any other financial institutions while the other two were unsure what could be available for them in the modern sector, again suggesting the predominance of the modernization paradigm in development. As will be shown in the next chapter, the instructors supported the views expressed by the students here regarding their job aspirations by pointing to the social origins which hinder interest in rural work.

In sum, the students in general showed little commitment towards working with rural farmers. The lack of solidarity with the poor is certainly connected with the agricultural science program based on the modernization paradigm of development whose main characteristics is to socialize professionals as superiors rather than servants of the masses. In the research reports which will be analyzed next, this model of rural and agricultural development is also found to be dominant.

4. 8 Research Orientation (s) in Agricultural and Rural Development

In the third chapter of this study, it was indicated that 72 undergraduate research reports submitted to Makerere University in partial fulfillment of the agricultural science degree were scrutinized for their research orientation. Also 12 Master of Science theses for Agricultural Economics in the same Faculty were studied in detail. As the next pages will shall, the purpose was to ascertain the extent to which the research interests of the students (indirectly of their instructors) relate to the needs of the rural and urban poor in a quest to address and resolve the issue of poverty and underdevelopment. As a result, attention was directed in the analysis to the relevance of the topics, content and study methods to the needs of the rural poor. A sample of abstracts and excerpts from the research reports are presented and synthesized with other data from interviews and documents.

Out of 72 undergraduate reports, about 51 were surveys with the majority focused on agronomic practices in various parts of Uganda. These surveys tended to coincide with administrative and political boundaries such as parishes, counties and districts but mainly confined to the southern parts of Uganda while most experimental field studies numbering about 20 were concentrated in the Kabanyolo University Farm. The agronomic surveys used more or less the same research methods based on a mixture of questionnaires and structured interviews. In all agronomic surveys in particular the findings and the conclusions drawn from the data are basically geared towards the modernization paradigm of agricultural development.

In general the research orientation was overwhelmingly tilted towards modernization paradigm in agricultural development with its preoccupation for the commoditization of farming using modern technology and marketing channels. The research reports on agronomic surveys consistently pinpointed the lack of modern inputs and the low level of literacy among the farmers as being the crucial impediments to rural and agricultural development in various regions of Uganda. Commonly cited were characteristics associated with "primitivity" of the rural populace which were seen to be responsible for poor crop planting and rotation, wrong timing for planting and the predominance of numerous diseases and pests. In no instance was a positive evaluation of indigenous agricultural knowledge and technology made nor was any empathy or compassion for the rural farmers shown. Similarly, there was no instance where the methods adopted for the studies were targeted to include the views or the opinions of the farmers into the research process, suggesting a complete disregard for participatory action research.

The Surveys which focused on institutions such as cooperative societies and commercial banks lauded their role in the development efforts to alleviate poverty but without making any reference to the exploitation of the masses by such institutions and the rampant corruption among the officials which has debilitated national development efforts for several decades. Missing also was any critical awareness for the grassroots organizations and peoples' movements as alternative organizations to provide credit to the farmers in rural areas. Like the agronomic surveys mentioned above, the studies on agricultural institutions relied heavily on government as a crucial lever for the mobilization of resources for national development. Simply put, the surveys conducted were based on the modernization assumptions of rural and agricultural development.

For the experimental studies, the focus was on single-crop farming systems of the kind promoted by the mainstream international development agencies in the South societies. As a result, there was little concern for inter cropping systems which have traditionally sustained agricultural development in most societies in the South. This omission is related to the absence of any significant appreciation for indigenous technical knowledge and cultural practices of the communities which surrounded the sites where the field studies were conducted. As the next pages will show, the experimental studies were conducted in artificial conditions promoted by the modernization paradigm of agricultural development. Critical analysts insist on the need for field research to collaborative and participatory in order to show accountability to communities whose social problems need to be addressed and resolved through the application of the findings.

There was also a general disregard of women as a social group in the development process in nearly all studies conducted despite their increased role in agricultural production. The studies on women mostly conducted by male students were overly concerned with the "modern sector" and focused on topics and issues which did not expose the effects of structural inequalities on women as a social group. The issues and problems treated ranged from the provision of credit for commercial farming to access to educational institutions. Missing in the studies on issues related to women were crucial issues of economic exploitation in agriculture as well as the marginalization suffered by women as a group in decision making processes in Uganda. Where studies attempted to attend to the participation by women in decision making like in the case one study which focused on the women in the extension service in the Eastern part of Uganda, little interest was taken to decipher the economic and political underpinnings that dictate the need to draw women into the exploitative economic relations nor was any sensitivity shown for the role of international agencies in the marginalization of women.

The studies that were conducted around Kampala city also showed no concern for urban farmers in general who live in the various shanties. Although a big number of people in the city and within the university desperately attempt to reproduce their existence from farming, there were hardly any studies that focused or appeared to perceive them as a social group for the attention of agricultural researchers. Research on issues related to urban farming could potentially enrich the students understanding of conditions which prevail in rural areas through their association with the shanties dwellers. This could have been particularly useful for those from high socioeconomic origins in particular who, according to reports from the instructors, did not show any knowledge of rural farming. Similarly, it would have also been beneficial for students to understand the issues and problems of social existence among people who farm illegally in order to develop a positive attitude and solidarity with the marginalized masses.

Missing also in the research reports were issues related to ecological degradation which has reached alarming proportions in the rural and urban Uganda alike. Nearly all agronomic surveys stressed the need to introduce agri-chemicals in order to improve productivity viewed to be decisive in mitigating rural poverty and underdevelopment but which I showed in the literature review as typically the approach in the modernization paradigm of agricultural development. All studies lacked the slightest appreciation of the effects of agricultural modernization on ecological damage and degradation especially through the indiscriminate use of fertilizers, pesticides and herbicides in farming. Similarly, nearly all studies did not show any awareness of the important relationship between poverty and environmental degradation as critical analysts demand. It should be recalled that from the interviews, students also tended to see the problems of environmental degradation not from the perspective of poverty but as a result of increasing population growth against diminishing resources. As I will indicate shortly, even students in the Forestry option who, according to the Faculty Handbook, are exposed to environmental issues in the program also justified their studies on the basis of meeting the needs of an increasing population without paying any attention to the issues of poverty and environment.

Before analyzing a sample of research reports, it is important also to stress that most agronomic surveys were not equitably distributed throughout Uganda such that certain ecological zones such as the north were generally excluded. At the beginning, I also pointed out that students in most programs in the University are from Southern Uganda as a reflection of the colonial legacy in which uneven development formed the basis for the continued accumulation of wealth (Mamdani, 1976; Smith, 1984). It should not therefore come to us as a surprise that agronomic studies done were coterminous with the historical spatial configuration in this society in which the northern regions were marginalized economically and politically. Thus, although Karamoja in the North East of Uganda could have been a fascinating region to study from the point of cattle farming, especially the unique ways in which the pastoral inhabitants have been able to reproduce their existence in very difficult ecological zones for decades, not a single study showed any interest in the region. In fact, from numerous accounts that speak about problems of rural farmers, it is quite evident that the Karamajong clearly fall under the common categorization of "primitive" farmers as will be shown in a moment.

Among a myriad of agronomic surveys, the one done by Ronald Wafula at Mpigi, lying almost forty miles away from Kampala city towards the South was quite interesting for the purposes of this study. The following statements are made in its abstracts:

> It is found that farmers use primitive farming methods like burning of bush during land clearing and lack of pests and diseases control, lack of fertilizer application, poor crop rotations and inter cropping. All these poor farming practices were found to be the cause of low crop production.

In modernization paradigm, farmers still at the level of production as described above are regarded as being at the initial stages of development (Rostow, 1971; Parsons, 1966). The economic philosophy of "stages of growth" would require such farmers to transcend their "primitive customs" as well as to abandon their "child like ways" in order to progress beyond subsistence agriculture. In a critical review of the World Bank in international development and underdevelopment, Payer (1982) points out farmers still at "subsistence level" are perceived to fall below the "poverty line" often used by development "experts" as a justification for the modernization of agriculture. Furthermore, the World Bank is particularly uncomfortable with "self-provisioning" communities like the pastoralists in the northern part of Uganda who maintain little interaction with the modern economy. There have been several efforts made all around the world to lift the living standards of rural communities above what is regarded as "poverty line" but without much success. MacKenzie (1987) reports an interesting case among the Maasai in Kenya who declined to take the advice from the international agencies on cattle ranching. One interesting point is that the "poverty line" is often arrived at using North standards which are seen as a yardstick for all societies regardless of their cultures.

It ought to be noted that the classification of farmers in the South as "primitive" owes its origin to the thought and behavior of Europeans towards Others (Marimba Ani, 1994). According to Harry Elmer Barness (1965), the "primitive" mind is full of "superstition" from which "civilized" man today is said to be emancipated.

> Practically speaking, the primitive mentality is dominated by comparative ignorance, by a type of attitude we call superstitious from which civilized and educated man today is relatively emancipated. Primitive man also lacks the mental discipline which comes from training in logic. Consequently, his imagination is more or less restrained. He creates and believes in a great number of mythologies. He tries to control nature by magic- that is, by incantations, prayers, rituals, and festivals. Such

> intellectual advances as civilized man has made have been achieved mainly through release from such naiveté. (41)

The reference made to Africa as the "dark continent" is associated with this view in regard to "Other" which the colonial education successfully created in the minds of the "educated" sector of the population. Rural people in general are viewed as inferior to the urbanites. In the process to create *Africa*, it was important for colonialism to hold in contempt anything valued by Africans especially by demoting key figures like priests to "witch-doctors" and African kings to "chiefs" and to consolidate the process through an alien education system rooted in Western consciousness (Brantlinger, 1985; Austin, 1989). Translating this analysis to the present study, the academic researcher perceives himself as superior to the Other (the farmer) who in reality bears full responsibility for feeding and sustaining the imported lifestyle of the "modernisers" including researchers. Furthermore, as subsequent analysis will show, the student researchers showed little empathy and solidarity with rural farmers who shoulder the full cost of their tuition as well as their upkeep in the University. The critical paradigm takes a different course through an authentic respect of cultures and the innate abilities of all peoples irrespective of their education to engage in a revolutionary transformation of their social conditions.

The study by G. W. Byamukama conducted in Rukungiri in the South-Western tip of Uganda also carried almost the same message regarding farming by the rural masses. As in most surveys, the author stressed the role of government towards "helping' farmers to overcome their "primitive" state of living.

> The survey revealed that the solutions provided by government to problems faced in agriculture has not reached the majority of the farmers... Their agronomic practices are still very poor. All the farmers use simple tools (hoes, *pangas*, and axes) for seed preparation. Late planting is very common. Broadcasting and sometimes dibbling of seeds are the methods employed in planting hence they use recommended seed rates. They use local varieties which are not high yielding and seed treatment is not practiced. Mulching and use of manure are limited and there is no use of fertilizers. Weed control is not effective due to lack of herbicides and labor. Pests and disease control are limited. Yields of crops is therefore very poor and for the little realized, marketing facilities are very poor.

We noted at the beginning of this section the persistent neglect shown by the students for the negative impact of chemicals on farming (Carson, 1962; Commoner, 1990; Redclift, 1984). While the significance of science and technology cannot be denied in providing increased supplies of food for the world's population, it is unfortunate that the agricultural science program does not show an unequal concern for the environmental consequences of scientific advance and development as reflected in the assertions in the research reports.

Furthermore, the uncritical faith in the role of government to provide "good" advice and sustain the process of development creates more problems that it attempts to solve. In fact, governments in their utterances and document make the claim that they exist to serve the needs of the poor but without taking into account the experience so far gathered on government-sponsored development. In Uganda various governments rather than "helping" farmers have been exploiting rural people and in some cases exterminating them using costly state weapons procured with public funds. Also in the neighboring Zaire, the government has been engaged in a dangerous policy of reducing the population to abject poverty through systematic exploitation of labor and natural wealth for the benefit of the North. Regrettably, no awareness of the history of development was shown as students are channeled to view governments as mobilizers and protectors of the masses.

Intellectuals quite often are out touch with the reality of the masses. In the above quotation, the author claims that farmers do not know the right planting season. As George (1976) and Chambers (1983) maintain, farmers have been doing indigenous farming and research for hundreds of years. Surely, if the student researcher had been armed with an intimate understanding of rural farming, he would not have blundered into castigating farmers for their "ignorance" of the farming seasons. Even the claim that farmers do not use high yielding variety seeds is problematic when viewed from a critical perspective. As Mooney (1985) testifies, the germplasm concentrated in the North today originated mostly from the South. With the commoditization of farming, seeds have now passed into the hands of companies located in the North and it is estimated that by the end of this century, there will probably be no indigenous seeds available.

The important point is that farmers have an intricate understanding about indigenous seeds but which unfortunately, has recently been undermined by agribusiness that today control seeds as well as pesticides, hence rendering poor societies vulnerable to famine and hunger. As Mooney (1985:95) has put it:

> As the green revolution erodes genetic resources and as the Gene Revolution exposes the importance of control over these resources, the traditional family-dominated seed companies are being taken over by a group of transnational enterprises. Most of these companies have one foot on pesticides and another foot in genetic engineering. Now they are taking command over two major agricultural inputs: seeds and chemicals. Seeds are the first link in the food chain. If a company control seeds, it is well on its way to controlling its end product: food.

Obviously Donald Pluckett (1985:97-102), a Scientific Adviser to the Consultative Group in International Agricultural Research (CGIAR) refutes Mooney's assessment of the trends which world agriculture has taken to control food through patents and plant breeders. As shall be shown in the next chapter, Uganda's agricultural system has recently been integrated into the CGIAR with potentially debilitating consequences for the poor masses. What is particularly disturbing is that students appear not to have been exposed to these important trends which world agricultural development has recently taken and the implications of these developments on the poor majorities.

True to their modernization training, the student researcher was also insensitive to the ecological consequences of chemicals like fertilizers and pesticides as already stated to the extent that there was a general failure to see that with indigenous seeds in use, there is limited need for these chemicals for which the author is so emphatic about. Drawing on the lessons of long-standing practices, farmers for sure know which seeds are suitable and sustainable for their respective environments (Rahnema, 1988). Clearly, despite spending four years in a university program like agricultural science in Makerere at an enormous costs to the masses, this student researcher would have graduated without a critical understanding of indigenous and local knowledge in farming.

Another agronomic survey done in Mbarara region in Western Uganda by A. Nuwagira stated in the abstract as follows:

> The major objective of the study was to relate the production principles (especially in agronomic practices) in rural areas to what is actually recommended by researchers and to show how far innovations and government policies have reached farmers. The results show that farmers use traditional methods of farming characterized by local varieties, absence of crop protection, inadequate weeding, lack of scientifically management crop rotations, non-replenishment of soil fertility, untimely planting and harvesting and several others.

Again, there is much similarity in conclusions among student researchers. Consistent with the modernization logic, governments are still portrayed as "saviors" of the masses through their valuable advice rather than as possible oppressors. Since cotton cultivation started in Uganda around 1900, what have farmers benefited from the various governments which exploited their labor with impunity? Looking at rural areas in Uganda where cotton was imposed as a cash crop, it is quite evident that hardly any farmer was able to improve his/her housing, for example, using the income earned from this crop. Again, this is another scenario of a one-way flow of information from government to farmers. Mazrui (1992) has well argued that bureaucrats, politicians and academics should begin to implement a two-way flow of information. In agriculture, scientists need to begin listening to farmers about their problems before any technology can be developed. Also following George (1994) and George (1976), farmers are unlikely to adopt technologies for which they made no input towards their development. This point which will also feature in future analyses.

In the same Mbarara study, note the failure to connect the use of local varieties of seeds with the absence of crop protection. Again, the student researcher failed to realize that farmers have an intimate knowledge regarding those seeds that need little crop protection which partly explains why they have been able to survive even in harsher and more difficult ecological zones for several decades. An understanding of indigenous knowledge would be crucial for students researchers who should have an interest in widening the options as scientists that could be made available to the farmers in rural areas. It is deplorable that nearly the whole cohort would have graduated without gaining a critical understanding of how rural people experiment, test and re-test the methods of agricultural production in a manner that guarantees sustainable development.

All agronomic surveys proceed in the same structure and tone. Farmers are depicted as "ignorant" while scientists possess the indispensable knowledge for "progress" which farmers need. Consequently, the role of the scientist is to civilize, instruct, legislate and reprimand farmers where necessary in the process of development. Likewise, as Said (1990) aptly summarizes, the role of the colonizer to the African was to civilize, legislate, instruct, discipline and where necessary war against and exterminate.

The study by Mukembo Julius Banakudino conducted in Iganga district was also deeply influenced by the modernization paradigm of agricultural development. The abstract reads:

> Agronomic practices used by farmers have hindered the progress to increased production and distribution of crops. This study was therefore carried out to find out agricultural practices, constraints faced by farmers and also evaluate the incomes and labor availability in relation to crop production... Results showed that due to the use of poor agronomic practices by farmers in the district has led to decreased crop production and also different distribution of crops in the district. But with increased agricultural knowledge on crop production through extension workers, the district will be able to increase on its crop production and this will lead to increased incomes and will also reduce on the constraints faced by farmers in the district.

The conclusions reached in the study were; (1) farmers do not know about irrigation; (2) fertilizer manure application is lacking in the district; (3) protection from pests is not done and crops are not sprayed; (4) seed treatment has also been rejected by farmers due to lack of knowledge; (5) soils have been exhausted and therefore there is need to investigate soil fertility and (6) lack of capital for the purchase of agricultural inputs. The study then proceeds to make the following recommendations; (1) government should increase extension services; (2) farmers should practice the use of clean planting materials; (3) farmers should form associations and (4) farmers should leave land to rest.

This study was based on the assumptions that the improvement of the farmers' condition could arise from increased crop production associated with the application of modern methods of farming with the extension agents as key facilitators of that process. As a study influenced by the modernization paradigm of agricultural development, the author overlooks the structural inequalities in the district such as the uneven distribution of land as one of the main underpinnings of rural poverty and underdevelopment. Also, he showed an uncritical faith in the knowledge of the extension agents just like in all other agronomic surveys. Finally, the study does not take into account that even if the increased production generates more income as he claimed, this may still not change the conditions very much especially because the social services are likely to demand more funds from the individuals as structural adjustment programs in Uganda have eroded the power of the state provide for material existence. These social issues need to be considered seriously in discussions which focus on agricultural development in poor societies. Before I take a look at studies with a slightly different focus, let me have one more agronomic survey, but this time the only study from the North of Uganda. This was done by J. Uyer in Padyere County, Nebbi District on citrus farming.

> The objective of the study was to survey the agronomic practices of citrus production by farmers of Padyere county in order to evaluate their consistency with recommended standard practices normally employed in citrus production... Most of the recommended agronomic practices were not adhered to. This was basically due to lack of basic knowledge on how to maintain citrus production. Use of seeds for propagation other than vegetative propagation, uneven spacing with mixed varieties, low use of fertilizers and chemical sprays and dependency on local varieties result in poor production.

The question which begs for an answer is whether the "recommended standard practices" were developed with the assistance of citrus fruit farmers in this district. If not, then there is little reason why farmers should be enthusiastic on the implementation of practices which have little to do with their own experience.

Furthermore, little consideration was given to the fact that local ecological diversity renders the application of "recommended standard practices" irrelevant to certain situations (Chambers, 1988; Hoogvelt, Phillips & Taylor, 1991). The universality of research findings as typically claimed by the proponents of agricultural modernization has been contradicted by experience and led to the disillusionment by scientists. As a result, the student researcher appears to overlook the fact that citrus fruit farmers in Nebbi also carry out many other activities at the same time. Consequently, the standardized practices which are referred to above are suitable for farming as practiced in the "developed" nations in the North. Thus, the student researcher lost the opportunity to conduct a holistic inquiry into farming among poor communities that are engaged in multiple activities to ensure their survival. One is tempted to think that practical research was not done by most students especially when consideration is given to what instructors said regarding their attitudes to engage in the practicum. Without participatory approaches to research, it is quite unlikely that students could have gained any useful knowledge on the farming conditions of rural farmers. What student researchers need to realize is that agriculture cannot be learnt through rehearsals just as they do not rehearse dancing for their annual parties. Like dancing, agriculture is learnt as a performance in communion with other farmers. The skills needed for successful farming are not only technical but social as well.

In research reports which focused on financial institutions, there were also some critical problems. The study on Coffee Marketing Board (CMB) conducted by Monica Nabirye concluded that the Board failed to "stabilize" the farmers' prices as well as to act as an effective tax gathering instrument. To "stabilize" prices in the face of sky-rocketing inflation is to worsen the social conditions of the farmers who already have no voice in the determination of prices for their produce. The author also failed to pinpoint the need for farmers to become genuinely involved in the management of the Board which could enable them to influence the affairs of the board to their benefit. In truth, the CMB, through price stabilization, has benefited not the farmers but those in political power as well as their patronizers (Young, Sherman & Rose, 1981). It is noteworthy that various Kampala regimes have used marketing boards such as CMB to "reward" political supporters and friends as in the case of Milton Obote II regime when the Army Chief of Staff became the top executive of Coffee Marketing Board. It is also why in Kenya, the IMF structural adjustment program which interfered with the produce marketing boards met with stiff resistance from government authorities (Gibbon, 1992). This was not in the interest of the ordinary farmers but to protect privileges accruing from such management boards to individuals in positions of power.

A related study by A. R Ochollah on Bukedi Cooperative Union in Eastern Uganda located in Tororo town had problems too. According to the author,

> By and large, cooperatives have made tremendous impact in social and economic development of Uganda as a result of which most governments

> have regarded cooperatives as useful and effective tool for accelerating rural development... Through cooperative efforts, agricultural extension services have been intensified and production of both food and cash crops has been enhanced. The cooperatives have also proved a countervailing power in reducing the levels of exploitation by middlemen and money lenders.

Two types of such societies could be said to exist in South societies like Uganda. The first type arise from grassroots movements which organize to protect the masses from exploitation by the state and related institutions. The second type are a creation of the state as part of the strategy to organize production for export-led growth (Young, Sherman & Rose, 1981; Mamdani, 1976). As extensions of the colonial state, there could not be regarded as pro-people institutions since their inclination was tilted towards extraction of wealth for export to the North. Clearly, as variously indicated, the elite in positions of authority are never the victims of this exploitation but are in reality its beneficiaries. The rampant corruption that has combined with the work of the "fools" to undermine development are partly responsible for the collapse of national development efforts. In Uganda, there is little doubt that the masses are totally disenchanted with cooperatives and marketing boards and openly long for their demise.

In several instances, the state pretends to chart agricultural policies which are fully geared towards helping to meet the basic needs of the poor. In Tanzania, as Musti De Gennaro (1981) reports, the confrontation between the state and the rural poor over the implementation of Ujamaa policies applauded by Julius Nyerere himself provides an interesting case. While the state stressed the importance of crops that would generate surplus value on the world market, the Ruvuma Development Association (RDA), based on Nyerere's own principles of "self-help" emphasized those crops which the producer consumed directly, that is, food crops. As Musti De Gennaro (1981:130) summarizes the implications,

> The confrontation between the state and the RDA had political and ideological as well as economic implications. At the political level it posed the question of the relationship between grassroots organizations and the party and between the people and the state. At the ideological level, the prevailing attitude of the state apparatus was that local people were too immature to make their own decisions or to express their own interest and thus required directives from the top. This opposition of elitist versus popular forms of control arose out of their social origins of the power bloc And the RDA.

Quite often the state is weary about those organizations by the masses which tend to promote the interests of the masses against the needs of the international capital accumulation regime. In consequence, the RDA was finally banned in order to ensure the continuity of the hegemonic influence of the political class in state decision-making. In Uganda too, it remains to be seen whether the grassroots Resistance Councils (RCs) which have virtually replaced the authoritarian apparatus of colonial chieftainship shall be allowed the full range of powers to take decisions related to the organization of production and distribution of wealth without undue interference from the central authorities. Where choices have to be made by the masses between cultivation of food for export to the North and the satisfaction of domestic food needs, it is quite unlikely that international agencies and the state would be pleased to see the latter prevail.

I have also argued before that in the districts of Kumi and Soroti in Uganda cotton production has declined considerably as caused by the unorganized resistance from the masses. In Bukedi (Tororo and Pallisa districts) where the author conducted his research, hardly any cotton is grown today. Obviously many people who perhaps include officials in the NRM itself may wish to lay blame on past governments for the destruction of the supporting infrastructure and killing morale among the farmers. The truth, however, is that farmers have rejected cotton and instead resorted to the cultivation of food crops arising from a rational calculation of the environmental and monetary returns from such an economy. In this context, the cooperatives which are eager to extend technology and advice to farmers could not be regarded to act in the best interests of the masses as claimed above by the student researcher. In reality, if the agricultural program was tailored towards equipping the students with a critical understanding of the social dynamics, there is no way the student researcher would have failed to raise this issue in his report about his own area of origin. Again, here we find another case of a student researcher who is inadequately equipped with methods of social investigation even after going through such a laborious research experience.

Studies in the Forestry option all conducted under a similar supervisor were equally influenced by modernization assumptions of agricultural development. Central to their research was the concern on the "resistance" shown by farmers towards cultivation of eucalyptus tree. Several serving Forestry Officers who were interviewed confirmed this resistance while pointing out that the "rumors" about the destruction of soils associated with the eucalyptus tree cultivation originated from India. One study conducted by F. R. Nyaguti stated the problem as follows:

> Some of the farmers have been influenced that eucalyptus takes a lot of water, and more so, degrades the soil. This has caused a resistance from rural people to adopt the idea of tree planting and therefore it is against this confusion that the dilemma should be resolved, such that local people

> will be told what the truth is, whether to continue and adopt the idea, or use another tree species which can substitute eucalyptus.

Her main conclusion was that as a fast growing tree crop, it needs a plenty of water to sustain rapid growth and hence, "disproving" the farmers. Consequently, she made several recommendations (all within the modernization paradigm) but the ninth is particularly relevant for the analysis here.

> Farmers should be encouraged to plant eucalyptus as a monoculture and with careful husbandry, it is capable of producing wood at a lower nutrient cost and should be made aware that like any other fast growing species, it requires nutrients in order to mature quickly.

It is worth noting at the outset that the author denies rural farmers the capacity to make sound judgments on their own regarding their farming life by alluding the resistance to external influences. This is typical of the attitude harbored by state officials towards the farmers which also marks their insistence on technology transfer as a strategy to speed up the adoption of innovations. In fact, she subscribed to that view by urging the state to "encourage" the farmers to grow eucalyptus trees. This recommendation is undoubtedly based on her perceptions of the farmers as "irrational" or "unscientific" in their behavior. Apart from such inherent weaknesses, no other possible account for the resistance was given such as the awareness among the rural poor that externally-funded projects often are harmful to their environment (Chambers, 1983; George, 1976; Rhoades, 1984). Furthermore, as an experimental study conducted in Mbale eucalyptus plantations in Eastern Uganda, it omitted the input of the farmers which could have been crucial in generating insights based on the local understanding of the environment.

As a result, social aspects of farming which make eucalyptus cultivation meaningless to farmers are lost to the study (e.g. the total amount of time available to the farmers given that they are also engaged in many other economic activities and whether farmers have the necessary inputs to make such farming realistic). Furthermore, there is no attempt made to ascertain whether in the social conditions of the individual farmers, tree planting is a better option than the cultivation of food for consumption. On the contrary, farmers would prefer to grow food as first priority and attend to commercial tree planting as a minor activity since it is after all unrelated to internal needs of the communities. As Timberlake (1985) argues, eucalyptus tree planting is associated with the needs of the international capital based on the economic motive to export tobacco which is never consumed by farmers as food. In elaborating this point , he writes:

> There have a few other comparable episodes of large-scale, private tree growing in Africa, although when British American Tobacco (BAT) shifted operations from Uganda to Kenya in the early 1970s, it insisted that peasants selling tobacco must also sell wood. So BAT provided forestry extension services. (124)

Note that the probable reason for shifting BAT to Kenya must have been related to the need to avoid the economic and physical dangers from Idi Amin's dictatorship as foreign companies are never prepared to incur any losses abroad. Clearly, tree planting as cited above was initiated in Kenya by external needs and it is quite unlikely that farmers would be enthusiastic about meeting such needs. In Uganda too, as the student researcher herself noted in the study, eucalyptus tree planting has very little to do with the needs of local communities but to satisfy urban demand as well as tobacco curing. The irony is that although a lot of tobacco is grown in Uganda, the masses consume raw tobacco processed under indigenous methods in their own homes. In fact, in recent years trade in this tobacco has boomed greatly since the number of consumers increased following the collapse of the modern sector.

The real problem appears to be what Chambers (1983) has consistently pointed out to the effect that researchers ought to have patience and respect rural people's knowledge about farming before hurrying into fatal conclusions. To him, the most important single thing is for researchers to deliberately spend adequate time with farmers to study farming problems in order to avoid what he calls "development tourism" as commonly practiced by many researchers in various disciplines. Although Mamdani (1987) is one Ugandan, for example, who is at the forefront in rooting the university in the African soil, he too acted as a "development tourist" in a study conducted in the North and Central Uganda. To Chambers and others like him, the kind of research he conducted has very little value for changing the rural conditions since the real problems never become understood.

Similarly, researchers are often in the habit of masking the real problems in a confusing language couched in the modernization paradigm which ends up blaming the victims. For example, the masses are often blamed for having large families when they are not seen as lazy natives. Scientists are today accustomed to justifying whatever they do on the grounds of meeting the needs of increasing population in various regions. In other words, the masses need not raise any questions regarding the scientists simply because the latter exist to resolve social problems which are not of their own making. Student research reports were also of this kind as I shall demonstrate shortly. In R. Kisakye's experimental study done in Namanve forest plantation near Kampala, still on eucalyptus, the population issue was at the forefront as a justification for the study as quoted below:

> Given the high rates of population increases in Uganda, we need a high yielding tree crop to meet the related needs in demand for wood products... While professionals do not see anything wrong with the continued establishment of eucalyptus, some people see it as a danger to the environment. There is need to study the effects of eucalyptus on the ecology so as to get scientific data to base on when making decisions as regards the establishment of eucalyptus.

The reference made about "some people" certainly refers to rural farmers plus dissidents among the educated who, in the view of scientists, are in the first place largely responsible for creating the problem of "population explosion" for which the scientists are committed to resolve through technical means despite the "unreasonable resistance" from the victims. We can see that important considerations pertaining to the social existence of the farmers like what existed in the farming systems prior to the appearance of the tree crop are omitted or relegated to a footnote. Instead, it is assumed in advance that regardless of what farmers think (in fact anybody) it is the right thing to do for their "own good". Furthermore, the author misleads us into thinking that eucalyptus cultivation was initiated by the need to respond to the needs of the masses and yet from his own assertions and his colleagues who researched on the same topic, the primary motivation was to provide wood for tobacco curing in districts such as Arua in Northern Uganda and to meet the urban needs of the privileged elite. This confusion seem to have undermined his ability to see the connection between top-to-bottom agricultural decisions and the resistance of farmers to such schemes. The masses hardly use eucalyptus tree for fuel nor do they benefit from it for building houses as the common experience in Uganda clearly shows.

Two further issues need to be pointed out here. Firstly, in other societies, eucalyptus are found to use up too much water hence, causing physical and social problems to the communities concerned. This fact makes it necessary for scientists to clarify why this is not the case in Uganda where rural farmers who are not even aware of this happening elsewhere are actively putting up resistance. It is naive to assert that rural farmers in Uganda are in contact with the Indian farmers from whom they could have obtained the "rumors" on this tree. The other issue that needs to be stressed is that the confrontation which has arisen between farmers and scientists cannot be resolved using technical methods alone since there is need to take into account a combination of factors which impinge on the farmers' lives but which also could prevent the cultivation of the tree crop. Yet, judging from the research reports, not the remotest concern to investigate these aspects of the problem seemed evident.

Turning to Animal Science option, Fred Kabi who was under the guidance of an instructor who aired strong views regarding Faculty research during the interviews, conducted a study to investigate the potential for using crop residues and agro-industrial wastes as feeds for livestock in Bugabula county in Kamuli district. He wrote the following as the introduction of his study:

> Agriculture is important in the economy... The population of Uganda is growing at a rate of 2.5% per annum. Therefore one of the greatest problems of this and the next generation may be to produce enough food for the increasing population. If unchecked, population will have increased from the present 16.6% million people to approximately 32 million by the year 2008. Against this background...

Clearly, the problem of underdevelopment and poverty has been reduced to rapid population growth. From the previous analyses, I have stressed in connection with the "green revolution" that although impressive increases in crop yields were obtained, this was not counterbalanced by the resultant environmental damage and social inequality. The student researcher is put under the illusion that improvements in science and technology will resolve social contradictions associated with historical-structural inequalities and violence.

The abstract offers further interesting insights into the research orientation on the topic on alternative animal feeds.

> Crop residues and agro-industrial wastes could supplement local resources for animal feeds. This is the use of non-conventional feeds. Lack of knowledge among farmers as regards feed resources is still a big block to livestock producers in Bugabula.

As a survey study, it would appear that inadequate attention was given to the details of livestock farming in the area. As a result, the author fails to see that what he calls "wastes" rarely exist in remote and devastated counties like Bugabula which the recent hardships imposed by structural adjustment programs have reduced to a miserable existence. At the time of this research, the symptoms of the recent famine which recently hit Eastern and Northern Uganda, including Bugabula were already self-evident. This famine has been so severe that the Uganda government has been compelled recently to set up a commission of inquiry to investigate the matter. In that context, one could not reasonably speak about "wastes" for animals.

A close look at rural areas in Eastern Uganda shows that farmers are quite well aware of the feeds the student researcher has written about but the recent hardships have converted the so-called wastes into food for the desperate masses. For example, while sweet potato peelings have conventionally been fed to cattle by the masses in various areas without advice from any scientist, this has ceased simply because it has been converted to food for human consumption. Nor are cassava peelings or any other peelings easily thrown away as the student researcher seems to suggest. Thus, the claims made by the student researcher regarding the "ignorance" of the farmers are not supported by experience and cannot be accepted as valid.

Two kinds of problems seem to be associated with research reports that show no bearing with the social reality. First, as Samoff (1993) aptly argues, reality is masked by the knowledge production systems and processes in Africa which are governed by external rather than internal interests in order to maintain a status quo in which the majorities remain in perpetual poverty. As a result, Kabi's report makes no mention of the constraints which farmers face in Bugabula but he blames the farmers for "refusing" to take the advice on animal feeds. In some cases, as Chinweizu (1975) shows, African researchers never really manage to define any social problem and as a result, a life career could be devoted to irrelevant research. The second issue is that methods of teaching and mechanisms of validating knowledge prevent the growth of critical consciousness which could challenge the external interests eager to maintain the status quo. As a result, student researchers are chronically weak at making correct assessments of social reality necessary to develop a sense of commitment to address and resolve numerous problems which face the masses.

Looked at in a holistic way, one of the issues that could have emerged in the study on "wastes" is that they are in reality converted into sources of fuel in some cases especially if serious attention is given to the fact that environmental destruction has made it almost impossible for the masses to meet their needs for fuel. It is common knowledge in Bugabula and other areas to use cow dung, husks and any other "wastes" as fuel simply due to the environmental damage caused by poverty. The idea of "wastes" has its origin in the North societies where capitalist cultures are characteristically wasteful as their daily experience shows. It is also in the North countries that one finds a huge turnover of wastes from industries that are intimately linked to agriculture as demanded by the needs of capitalist accumulation regime (Amin, 1974). Surprisingly, the student researcher is hardly sensitive to the fact that Bugabula has no such industries which could turn out wastes for livestock at a rate that merits his study.

Following this study was another conducted by E. Lutaaya focused on social aspects that may influence husbandry awareness, value awareness and rabbit farming adoption attitudes in Central Uganda. As stated, the problem of the study was to investigate the extent to which "Ugandans are aware of the rabbit's potential as an alternative domesticable livestock for meat supply. What steps ought to be taken to enhance proper adoptive attitudes towards rabbit production and utilization". The literature reviewed was closely structured upon the ideas of Rogers (1983) who is widely cited in the study. Like the previous study, it was justified on the grounds of the increasing population that needs to be fed through increased food production. The conclusion reached pointed to the farmers' "ignorance" on rabbits as a potential source of meat supply which is said to require awareness campaigns like mass media, agricultural extension services, variety food shows, club competitions.

It is quite evident that the study is based on superiority-inferiority assumptions which place the scientists over and above the masses. As a result, the structure of the study eschews the need to solicit views from the masses regarding rabbits as part of the solution to poverty and underdevelopment. When agricultural researchers talk about "food variety shows" in societies where poor people are almost selling children they cannot feed, the obvious conclusion is that they are removed from social reality. How realistic is it to conduct shows in rural villages where some people eat rats in order to survive as the recent famine in Uganda demonstrated? What is ignored is the role of harsh government policies in creating social conditions characterized by poverty and social inequality in which the majorities have nothing to eat most of the year. A critical realization of this point could lead to an understanding of what solutions could be provided by scientists to feed the hungry masses and how rabbits fit in that agenda.

Furthermore, as Rhoades (1984) indicates, it would be helpful too, to ascertain whether rabbits are acceptable culturally before farmers are labeled as "ignorant" or "primitive" since any food is part of culture. Where there is little respect for the local culture, as many "educated" people in the South clearly show towards the rural masses, the common tendency is to adopt authoritarian top-to-bottom approaches to development which deeply hurt the confidence of the masses. Other related issues which need close attention include whether farmers have the inputs available as well as the time. We need to ascertain also whether rabbits can sustain the needs of the farmers for any length of time before they could "adopt" them into their farming systems. How, for example, do rabbits fit into the marriage ceremonies of the different ethnic groups? Thus, the student researcher would have gained a critical understanding of farming as social action by paying sufficient attention to these issues. Obviously issues such as these are hardly important to the elite but they are to the rural masses.

Thus, this is another case where the social conditions in which farmers make decisions have been ignored as the students researcher proceeds to impose his own agenda for farmers to follow. Yet, it is extremely important for all cultural workers and agricultural scientists in particular to take full cognizance of the kind of problems which farmers face in order to present viable options which could enlarge the spaces for effective decision making. Rabbits as delicate animals need a lot of attention and it is quite unlikely that any farmer could easily choose to feed rabbits instead of their children. The point is that for poor people sometimes the priority is to grow food which can be eaten directly and which also does not drain much time from other activities. Also, even where farmers could have accepted to eat rabbits, these animals are so small that farmers may be discouraged from keeping them and instead grow something else. All these are issues which need critical attention of the scientist. As the study stands, it is best suited for publication and soliciting research funds from the wealthy nations of the North for whom rabbits could be a priority in their culture and diets.

Studies on women in agricultural and rural development were equally ridden with serious problems. The study by P. Kiruuta Tugumize on access to agricultural credit by small-scale women farmers concluded that there was no discrimination against women by financial institutions. As stated "though urban women lack capital too, existing agricultural credit schemes are targeting at rural women", implying a gender and class-sensitive distribution of credit. The study in fact, concludes with the declaration that there is no discrimination against women to be drawn into commercial farming. The interviews conducted with the Uganda Commercial Bank officials responsible for agricultural credit generated data which refuted this claim by their insistence that prospective creditors are closely screened on the basis of "character and capacity" in order to ensure the repayment of the money loaned. I shall quote the two officials responsible for the Rural Farmers' Scheme in Uganda Commercial Bank who were interviewed to solicit their views on the widespread claims by the students and instructors that the "assistance" was gender-sensitive:

> What we really have in mind when we talk about character is the need to stress the idea of security. *When we talk about character we are really trying to find people who are a lot honest, people who are not likely to gives us trouble chasing them up and down and so on and we are relying mainly on talking to neighbors, talking to opinion leaders and so on.* So that we get to know actually how a person actually how a person has been performing in the village. If they tell us *he* is doubtful character definitely we shall decline to extend our loan. If we are told that the man has been

> growing three acres of cotton and he wants to grow 15 or 20 then we query first of all where he will get the land. Secondly, will he be able to handle all the work because another aspect of this scheme is family labor. (*My emphasis*)

The evidence speaks for itself. The real message is that financial institutions are motivated by the profit motive rather than poverty as the student researcher stated. Furthermore, the officials insisted that in the case of rural women who showed up for the loans, the opinions of religious leaders, Resistance Councils officials and other village dignitaries were crucial in screening applications. Lack of sensitivity to these issues greatly reduces the authenticity of the research study.

Donald N. K Ndaula's study on women in horticulture production was equally tilted towards modernization paradigm. As a study which sought to investigate the socioeconomic and infrastructural factors that influence women's participation in horticultural production near Kampala, it was biased towards issues which have nothing to do with structural inequalities which could show the oppression inflicted on women in the economy. Instead it dwelt at length on modernization issues of extending extension services as well as marketing facilities to women and of course the usual provision of education. Regarding the latter, the findings indicated that " the illiterate or semi-illiterate will usually take up production of local horticultural crops which give lower returns". It was stated also that more educated women would move into commercial horticultural production geared towards exports to the North where returns are generally much higher, again proving the "rates or return" argument which I pointed out at the beginning.

The Tororo study by Boniface Orum Emuria on women in extension identified the shortage of women in this agricultural sector but took its role in agricultural development for granted. Also, it showed a lack of focus on the social forces which surround and limit the possibility for their inclusion to make any significant gains for the national development effort. By bringing out the manipulative role of international agencies in the proposed incorporation of women as cheap labor in the modern economy, the study would have been greatly enriched and also given the student researcher critical insights into extension work in Uganda which could be crucial in rural development work.

Finally, experimental studies which were mostly conducted in the University Farm, as already indicated above, failed to show accountability to the local communities. They were influenced by the notions of positivistic objectivity and neutrality that are characteristic of definitions of knowledge in the modernization paradigm. As Chambers (1981) has summarized:

> For some forms of agricultural R & D, there is a valid case for conducting work under controlled conditions. But these controlled conditions are artificial. They leave out farmer's needs, resources, and problems. (20)

As stated already, the land-grant model which has been emulated by Makerere University in agricultural science training is not likely to yield the best results for Uganda. The epistemological and philosophical basis for the American model are specific to their context and could only pose serious social and physical problems in the South. For Cooper & Cashman (1985), the single crop farming systems suited to American agriculture show problematic consequences when imposed elsewhere in the South societies. In the foregone analysis, it has been reiterated that without the active involvement of the masses in the entire development process in ways which are not manipulative from the authorities, the real problems facing the rural poor shall never surface and poverty and underdevelopment will continue to the defining characteristics of the societies concerned. In sum, through the responses of the students in the interviews and their academic research output, there is a clear preference for the modernization paradigm. Little evidence is available to suggest that the agricultural science graduates will leave Makerere with a critical understanding of the complex realities of Ugandan and South rural and agricultural development within the context of global structural inequalities.

CHAPTER FIVE

INSTRUCTORS AND POLICY MAKERS

5. 1 Introduction

This chapter analyses the views of two groups of Ugandan professionals who play a significant role in the theory and practice of rural and agricultural development. To begin with a sample of instructors or professors in the Faculty of Agriculture and Forestry provided data which reflected insights on their major assumptions, knowledge and attitudes related to paradigms of development. In the second section of the chapter, a similar analysis is made with regard to the paradigmatic orientation of a number of key policy makers or administrators in the Ministry of Agriculture, Animal industry and Fisheries. The findings here shed some complementary light on the professional formation and socialization of agricultural science students at Makerere University through the eyes of the teachers. They also reveal a degree of difference between Ministry officials and University teachers on expectations about the nature of agricultural science studies although whether this difference reflects substantive paradigmatic variation will be an important focus in the critical analysis found in this chapter.

5. 2 Background

According to the Commonwealth Universities Handbook (1993) as well as the Makerere University Calendar for the year 1991/93, the vast majority of instructors in the various departments in the Faculty of Agriculture and Forestry have at one time or another obtained part or all of their higher education in the universities in the North especially from USA, Canada, Australia, Britain and the Nordic countries. From both documents, it was not possible to establish the exact number of instructors in each of the eight departments as well as the foreign universities attended due to the incompleteness of the records as the administrators fail to cope with high turnover of several teachers on a perpetual move for relatively lucrative positions within and outside Uganda (Samoff, 1991). But it is certain that the total number of instructors and assistants is not less than 50 while the popular universities abroad from which higher education was obtained included London, Michigan, Rhode Island, Cornell, Toronto, ANU (Australian National University) and Ohio State University. As earlier stated, the MFAD program at the time of the study had already graduated several Faculty staff especially from Ohio State

University as the principal contractor in the program. In many well known universities such as the Ivy League schools and colleges in the US or the Australian National University, agricultural science programs are developed within the modernization framework such that higher education obtained by foreign students, may raise questions in relation to grassroots-based development directed to mitigate the poverty among the rural poor (Toh & Farrelly, 1992; Farrelly, 1986; Ohio University Bulletin 1993/94). The pages which follow will show the paradigmatic orientation of the instructors with regard to issues, problems and strategies for rural and agricultural development. Questions regarding curriculum relevance, views on students' social origins, instructional strategies, educational change and rural development in general were raised as specific themes of the wider context of social development.

5.3 **Paradigms on Poverty and Underdevelopment**

As with the students, the interviews with instructors were directed to ascertain their paradigmatic orientation with regard to issues and problems of rural and agricultural development. Again as with the students, the evidence gathered showed a tremendous emphasis on the need to improve agricultural extension services to rural farmers as part of the wider strategy to overcome poverty and underdevelopment. As stated by one instructor,

> Well, I think there is a problem first of all I would say in many developing countries. Let me give a general view before I come to Uganda. In almost all developing countries, *you find that the flow of information from research centers to the farmer, the user of this information is lacking.* There is that information gap, so that is the major factor that is generally found in all developing countries. (*italics added*)

I have noted earlier that the absence of the two-way flow of information between farmers and scientists as demanded by the critical paradigm was a major impediment to rural and agricultural development. In nearly all cases, instructors believed that their knowledge was superior and necessary for farmers in the common struggle to transform rural conditions. The citation above confirms this assertion. Thus, whenever the technologies have either been rejected or failed to work, this has typically been attributed to the "stupidity" of the farmers. As I will demonstrate in a moment, this social typing was either overtly expressed or implied in the responses. Yet, from the previous chapter a more comprehensive and valid account for the chronic lack of technology "adoption" lies in the absence of closer interaction and communication between farmers and scientists to define and research the problems of farming jointly (George, 1994; George, 1976; Chambers, 1983).

Continuing with the "knowledge deficit" in rural farmers, one Animal Scientist drew a comparison between medical and agricultural practice by stressing the need for an "educated" farming community. In his words,

> The major problem which people have not looked into is that you can not as I have said, go from peasant farming to commercial farming without education because you need to understand some scientific background, for example, when you are asked to use a certain amount of fertilizer, when you are told to space crops you must understand why. But if you do not understand, I will give you an example; in Medicine when you go to a doctor, you are illiterate, you are not educated, *he* will tell you to take this medicine (*pulls out the medicine out of a bag*), one tablet three times a day. But since you do not know the scientific basis of that, you go and take three of them all at ago because you think these will cure you more quickly. It is the same thing, it happens with even the farmers. They are told to mix pesticides on certain proportions but sometimes they do not follow those instructions because of ignorance.

From the above statement, the role of technology in agricultural modernization has been taken for granted. There is again the farmers' "ignorance" represented as a key bottleneck to social transformation. The cure often suggested is to provide both formal and non-formal education in order to have an educated population with modern attitudes and skills who are said to be sensitive to modern science and technology (Coombs & Manzoor, 1974; World Bank, 1974; Jamison & Lau, 1982). It would be foolish to deny the need for an educated farming community to sustain the process of national development but to wholly attribute the massive poverty and underdevelopment in the South to its absence as most instructors seemed to believe, is to ignore the important effects of structural inequalities and injustices in the social order between and within societies in the South. The relevance of the education provided in both formal institutions and outside them for social development should also be questioned.

Furthermore, the analogy drawn with medical professionals poses certain questions. The particular instructor was insensitive to the fact that the Ugandan medical professionals are not likely to be able utilize herbs and conduct successful counseling practices as "witch-doctors" have done for many generations. The common experience throughout societies in Africa shows that traditional health workers have rendered indispensable services towards meeting the health requirements of various societies. This knowledge by indigenous communities is often discounted by modern scientists who view themselves as superior (Navarro, 1976, 1983). Similarly, the instructor failed to appreciate that the "ignorant" farmers whom students also widely despised have been responsible for feeding the entire society for several decades including Animal Scientists themselves. For senior academics and professionals to refuse to acknowledge the roles played by the poor masses in keeping the economy running in which they are favorably placed raises many serious questions for national development.

Finally, as previously noted fertilizers and pesticides are very costly inputs which the poor majorities in Uganda can not afford. Aside from that, the environmental damage associated with their use would undermine sustainable agricultural development for the present and future generations (Carson, 1962; Commoner, 1990; Redclift, 1984; Timberlake, 1985). For agricultural scientists to emphasize the indiscriminate use of chemicals in farming without paying equal attention to the possible dangers to the environment as well as humans is a serious omission as viewed from the perspectives of critical analysts. It is not surprising therefore that the entire work of the students especially their research reports which were examined, grossly neglected environmental issues in relation to the use of chemicals in farming. The students overwhelmingly associated environmental degradation with "population explosion" rather than poverty as the real factor.

In a slightly different tone, another senior academic in Animal Science who was also an administrator in the Faculty pointed out that the problems of poverty and underdevelopment go beyond agricultural training to include national policies as well. As he put it,

> Well, agricultural development involves more than training. To some extent it depends on what policies government is implementing. Right now we have structural adjustment policy which I think the Ministry is responding to in various ways. We find that there are quite a lot of constraints in the field for extension staff... because unless field staff have adequate transport, adequate remuneration and facilities to carry out extension work then this will affect extension work.

A closer look at the statement above reveals that the instructor did not elaborate on the IMF structural adjustment programs (SAPs) administered in Uganda under the Economic Recovery Program (ERP) of the NRM. Instead, the respondent retreated suddenly to dwell on the favorite topic on the lack of agricultural extension services for national development. Attempts to encourage the respondent to elaborate were unsuccessful as he was unwilling. It would appear that although the damaging effects of IMF could be well known, the respondent seemed reluctant to directly challenge official policies that collaborate in structural adjustment schemes demanded by the International Monetary Fund (IMF).

The rest of the quotation is based on the problematic assumption that extension agents have indispensable information which farmers need but cannot be extended to them for no other reasons than administrative and financial constraints. Timberlake (1985:143) raises objections to that view when he notes that extension workers who often consume most of the "development aid" have little to offer.

> All over Africa, many extension workers fail to earn their keep because they lack any real knowledge which the farmer needs and can use. Often this lack stems from their ignorance of why farmers do what they do... In northern Uganda, farmers are officially advised to start planting cotton in mid-April. Tests show that yields fall off rapidly if planting is delayed for more than two months after this. Extension workers apparently do not realize that hailstorms hit northern Uganda at cotton harvest time. By delaying planting, farmers spread the hail risk. More important, by extending the season they can make time for a quick millet planting, both for food and with which to pay cotton workers.

Thus, the emphasis often placed on administrative constraints by instructors, policy makers and administrators to account for rural decay is questionable since there is need to challenge the assumed superiority of modern scientific knowledge acquired in formal institutions of learning. Rural farmers themselves ought be fully aware of the ignorance by extension workers regarding farming which they never perform any better than traditional farmers anyway. The cure, as George (1994) and George (1976) offer, is for the extension agents to view their own ignorance as the first step towards coming closer to the farmers.

The obsession with the Training and Visit (T & V) system of extension in the Faculty is well entrenched as one senior extensionist elaborated with pride:

> In fact we have carried out a survey in Kabanyolo area to find out whether there is a flow of information from Kabanyolo out which is also a research center and whether the research technology of that information is being used. *We have the answers now*. We have actually planned to have is what we call Agro-Socioeconomic Laboratory so that we can use that area as where students go to collect the information, use it for planning agricultural programs and going to practice in this area. And also the staff to go there to carry out some demonstrations so that they become rural or farmer-oriented. In other words, what we do here should be tailored towards helping the rural person, the farmer to improve his rural potential for farming and as a way of life and we hope that if we succeed then we can have satellites all over the country because we have these district farm institutes. So we could make outreach in this institutes. (*italics added*)

The added italics represent the confidence the extensionist has for resolving rural poverty and underdevelopment through agricultural outreach of the kind described above. It is necessary to point out that Tororo Farm Institute, as one of the "satellite" stations located in the East of Uganda was visited twice on the advice of the instructor to gain general insights about the activities conducted there. Nothing was strikingly spectacular at this Institute. The problems of the land-grant model of agricultural training have been outlined before and need not detain us here any longer (Brass, 1982; Fitzgerald, 1981). Clearly, the techniques of agricultural training and education for rural and agricultural development in the Faculty represent top-to-bottom approach which ignores grassroots model of development as advocated by the critical paradigm. Yet, as I will later show, the farmer outreach is also the approach preferred by top trainers and policy makers in the Uganda Government.

In another instance, one instructor in Extension also interviewed attributed rural underdevelopment and poverty to the lack of a well thought out government policy. He elaborated as follows:

> Recently I was with a priest in our area. *He was telling me that it is embarrassing to see people who are working cannot pay school fees for their children.* That is very unfortunate, something which is very relevant to our studies. Look at the rural development policy for this country. I was discussing one day with a Uganda professional on rural development and he told me that, you may not believe it, but as far as rural development is concerned, there is currently no development at all-there is no rural development at all- there is no policy for rural development. All the development that is there is extraction from rural to sustain the urban minority. That is what is in place for Uganda, it is a shame. Now you take a case for electrification. People have always said including the President himself that we have enough electricity, we have enough electricity in this country, we can use this, that our environment is rich but you cannot have it. Even in urban areas, the urban poor cannot afford. I heard last night that there is an electrification program going on in Western Uganda but what I heard is that it will remain at the towns. Probably it is going to the rural areas, I do not have the details but what I heard is that the recent increases in electricity are intended to finance the other electrification program... My county, Kyotera-somebody collecting water 10 miles away! Very dry and mountainous... These people who do not go to the countryside cannot appreciate the kind of absolute poverty in which our people are wallowing. (*italics added*)

Likewise, another senior extensionist expressed strong views on the neglect of agriculture by government as well as wealthy people in Uganda. In his view, this neglect has been responsible for the decay in rural areas. As he put it,

> You see over time particularly here in Uganda, although agriculture is the backbone of the economy, a majority of people have come to value what they call business. So the young people run into town, even the elite when they have money, they will invest in non-productive sectors. And because of that we continue to think that agriculture does not pay and yet it feeds you. So that has been our main problem.

Apparently impressed with the NRM "achievements" for the rural poor, he continued quite optimistically about the future of development:

> It is a culture which has been developed over time but I think now some are changing and that is why we have what we call "telephone farmers", remote-control farmers. You can see that people have started going to remote areas although they are in town... they do something eventually. Secondly, with industrialization, for example, cotton had gone simply because there were no ginneries, the lint or factories were not working, so there was nothing to stimulate production. Now that these are in place, people have started growing cotton and they will sell the cotton and get money because they know, first of all, they will get the clothes to wear, they will get the money which they will use for other things. The we used to have Kimbo, Blue Band from groundnuts before things had stopped but it is coming back because factories have been rehabilitated. Sometime back, for example, we used to have tomatoes-tomatoes are very expensive now because the factory for making jam, for making ketchup, for making juices-there is a factory so a lot of tomatoes are going there which means that if there is scarcity the people will now produce because the market is available. Now with this coming up things are going to change.

The two accounts on development and underdevelopment provided by the two instructors who are responsible for teaching rural development courses are quite important and need close attention. First of all, it should be noted that whenever the Ugandan educated make reference to *people who are working*, they have in mind those engaged in the "modern sector" activities rather than rural farmers. This partly arises from the socialization in the elitist school system which inculcates attitudes and belief systems which down grade the work done by the less educated who are excluded from the modern production sector. The notion of the "lazy native" as an explanation for the poverty of the masses owes its origin to the stigmatization and cultural devaluation associated with colonialism (Alatas, 1977). While the first extensionist showed some degree of compassion and solidarity with the rural poor, he did not appear to have found it useful to cite what the rural poor themselves say about their poverty. Instead, reference was constantly made to conversations with highly privileged groups like priests and rural development professionals.

Another crucial observation is that both extensionists believe in the state reformist model of development which has dismally failed all through out the South (Kothari, 1987; Gran, 1979; Wallerstein, 1993). A minor difference between the two views was that while the first shows empathy and concern for rural development, his more senior colleague appeared fully convinced about the capacity of the NRM government to resuscitate "industrialization" in Uganda. As Amin (1974) eloquently shows, the "extroverted" development in Africa in which there is lack of communication between different sectors of the economy, or to use NRM terminology, lack of "self-sustaining" development, cannot be expected to benefit the mass of the population. The production of ketchup or jam which the extensionist gave as a sign of progress is surely not meant to be consumed by the masses but by the privileged segments of the population. Also, as Mamdani (1989) shows for Uganda's experience with the IMF, growing tomatoes and packaging them in imported cans is not a viable industrial policy to benefit society in general.

The second instructor also blundered into praising cotton as a likely savior of the people. To begin with, common experience in Uganda shows that people no longer depend on locally produced clothes. As stated before in this work, farmers as well as government officials have increasingly become dependent on *Mivumba* (second hand clothes) which are easily available and also cheaper rather than locally produced garments. Also, the low output of cotton throughout Uganda reflects not the previous absence of factories but a genuine resistance towards an imposed cash crop. Vincent's (1982) important critique cited in the previous chapter in reference to Kumi and Soroti districts in Ugandan shows that this "black man's" crop was imposed through extremely harsh measures by the colonial authorities. In nearly all instances, none showed the slightest concern and sensitivity for agricultural history and the prevailing social reality in a manner which exposed the political and economic structures through which oppression is perpetuated. As a result, instructors and their students were unable to analyze the present famines as cumulative outcomes of imposed economic structures within the context of the history of that process. Thus, without organization and leadership, the masses in the East and North of Uganda have declined to grow cotton not out of "stupidity", as assumed by the instructors and administrators, but as a result of a correct assessment of its impact on the environment and the low returns to them. Also, in mainstream agricultural economics, such things like ginneries and factories, not people are seen to be crucial in "stimulating production" even where reality tells a completely different story.

In sum, views given on the causes of rural poverty and underdevelopment were not analyzed by the respondents according to the critical paradigm. Not surprisingly, instructors were either not aware of the structural constraints which operate at a global level to marginalize large section of the peoples in the South or simply preferred to avoid such issues. This was a crucial finding especially among teachers of courses which were directly related to rural development as their views appear to have influenced the thinking of the students as well. With a heavy accent placed on the role of education and efficient systems of government as key ways to bring about development, it is therefore reasonable to expect their assessments on the role of international agencies in national development to be positive as well as the next section will show.

5. 4 International Organizations and Local Collaboration in Rural Development

Views of the instructors were also solicited regarding the role of international agencies in rural and agricultural development. Records showed that the Faculty of Agriculture and Forestry had a long history of dealings with such institutions. As stated at the beginning, the United States Agencies for International Development (USAID) along with World Bank and the Rockefeller Foundation have been actively involved in agricultural development and training in Uganda. In general, there was a consensus among the instructors over the positive role international agencies have played in agricultural and rural development in Uganda. Nearly everyone cited the lucrative benefits reaped from their collaboration with USAID.

A senior academic in the Department of Extension summarized USAID's role in agricultural development as follows:

> Well, I think these people came in when we had become almost unable to function because we lacked the facilities. The staff were not doing research because we did not have facilities. We did not have transport, no agricultural chemicals, the facilities and logistics to enable us to work were not there. We lacked also some other tools like computers but now I think every department has a computer. Ours is one of the newest departments but it has a computer, one for the staff and the other for the students. This facilitates our doing research and also this research we have been doing was financed under this. So there was also the stress on off-farm research, that is , we used to have research stations and after that you release the knowledge through extension staff to the farmers. Now we feel that research may not benefit the farmer because you do not know the problem of the farmers. But if you go to the farmer and we know the problem of the farmer and our technology which we develop is farmer-oriented, then we are able to serve the farmer in a better way. So this enabled us to start off-farm research. That is, testing our new knowledge on the farmers plots as lecturers, extension staff and other agricultural researchers. We meet together and the farmer is brought into this linkage, what we call Research-Extension-Farmer linkage. It has been useful.

Additional insights regarding international agencies in agricultural development were provided by another instructor. The following statement was recorded:

> The MFAD program unfortunately has come to an end now. It ended in June and all the people involved are now gone but through that program we have been able to develop two types of Master of Science degree programs, there are two alternatives really. Alternative A consists mainly of course work and a minor research component. Alternative B consists of small amount of course work and a major research component, all of them of course are aimed at preparing a student to gain Master of Science degree in Agriculture and Forestry. Also through MFAD we have been able to develop Ph.D. program where students who have not been in our institution can also take some courses at post-graduate level in addition to their Ph.D. and dissertation.

It is useful to add at this point that MFAD program was a vigorous participant in the creation of the departments of Agricultural Engineering, Agricultural Education and Extension and Food Science and Technology within the Faculty of Agriculture and Forestry. The kinds of activities the MFAD program has been responsible for include the development of the course structure shown in the Faculty Handbook for various degree options while its internal assessment contains a detailed list of it achievements. Thus, for both undergraduate and graduate programs, USAID has played a major role in their development and also furnished the Faculty with key personnel as stated earlier.

Similarly, another instructor and senior administrator in the Faculty rated USAID highly for providing the Faculty of Agriculture and Forestry and the Ministry of Agriculture with high-level human power through local training and abroad.

> It has been good. The MFAD program, for example, on staff development has given us a lot of training for our Master of Science and Ph.D. candidates and most of the Ph.D. have now come back to man our programs here and some of them have gone for research. And this MFAD program was not limited to Makerere, it was also part of the Ministry of Agriculture as well. So even there they have trained a lot of people locally and abroad. Then in addition to that they also gave further training abroad for already qualified staff. These were short visits to update them in their different fields of specialization.

Likewise, the Faculty Dean at the time was full of praise for the splendid accomplishments made under the MFAD program.

> Well, USAID has played a significant role in our agricultural sector of the economy from 1983 and before that in the 60s before the military took over the realms of government. USAID as far as this Faculty is concerned and as far as the Ministry of Agriculture is concerned has concentrated on three-four different activities. The over all objective was known as

> MFAD. It is Manpower for Agricultural Development which means that it concentrated on human resources development for the agricultural sector of the economy. It did this in three-four different ways. One, was to rehabilitate the almost destroyed infrastructure. At Makerere University our teaching and research facilities, that is, labs, buildings as a whole. They also provided funds for the rehabilitation of our research institute, Makerere University Agricultural Research Institute, Kabanyolo (MUARIK). *The farm had returned to nature.* In three years with USAID funds we have rehabilitated it. We are able to do research there, to train students, hold demonstrations for farmers and so on. It also rehabilitated such facilities in the national agricultural research system like Kawanda, Namulonge, Serere-these have been rehabilitated but there were problems in Serere so USAID could not get there. Two, retraining. *What I mean is that those members of staff, both here and the Ministry of Agriculture who had been ostracized as it were from everybody in the world-no attendance at conferences, workshops, etc.-USAID provided funding to enable all to get out once again.* People went out for 2-3 months and that was really very useful experience for us. Then the training proper, that is, human resource development. Under USAID, MFAD project, by the end of the year, both the Ministry and Makerere will have approximately 70 scientists trained at Master of Science and Ph.D. level. In fact specifically about 60 Master of Science and about 21-22 Ph.Ds, the majority in the USA and they have all returned except 6 and by the end of this year, all of them would have returned. We have got about 12 here and the Ministry of Agriculture 12. (*My emphasis*)

The interview data demonstrated either a dismissal or a lack of awareness of the concerns by Arnove (1983), Berman (1979), Weiler (1984) and many others regarding the "hidden agenda" of international agencies in the education of foreign students for national development. They say that organizations such as USAID engage in the education and training of select a number of students form the South primarily to socialize them as future leaders and scientists who share world views and lifestyles with the North populations in order to promote corporate interests for "capital accumulation on a world scale". Hence, the similarity in knowledge skills, attitudes, beliefs and lifestyles between such graduates and the North populations is central in the maintenance of the status quo in which there is unequal development at a global level.

In truth, rural people have benefited very little, if anything, from the joint modernization of agriculture between governments and international agencies (Heyer, 1981; Williams, 1981; Bernstein, 1990; Gibbon, 1992). What is clear is that the preexisting inequalities between and within societies have been exacerbated through state-sponsored development models which have polarized and marginalized the majorities in the South. However, this development model has benefited the elite including the instructors who are central to the reproduction of the status quo by perpetuating world views and research approaches that ensure the continued hegemony of powerful states in the North. Thus, degrees obtained by graduates are linked to privileges which are dependent on the impoverishment of the masses. It is therefore unthinkable that such privileged elites could be committed to improve the social conditions in which the rural poor find themselves today.

The active involvement of USAID in program development in the Faculty of Agriculture reflects the continued interest by North nations to perpetuate world views and processes of knowledge production and validation which shy away from challenging the global status quo that greatly benefits the minority North populations who live in abundance viv-a-vis the rest of the world. That is why, looking at the Handbook alone for the Faculty of Agriculture, participatory action research (PAR), which challenges elite monopoly of knowledge is excluded from the program as this would lead students to question their privileged positions and the corresponding misery of the masses around them. In chapter four, it is also found that the undergraduate research reports preferred the use of survey research methods which brought them in contact mainly with the "progressive farmers" rather than groups of landless and poverty-stricken rural and urban dwellers. Since the program of study is designed around the notion of "positive knowledge" or knowledge that is objective and neutral as demanded by the modernization paradigm, the researchers are socialized to view their knowledge as superior to what the masses know. As a result, the tendency is for them to talk to each in the process of gaining approval and recognition on the questions of research activity. In this framework, there is no space provided for creating any dialogues with the masses whose problems need to be addressed. The examinations questions too, which will be analyzed soon reflect the same orientation to promote research methods based on elitist control of knowledge by excluding the experiences and the indigenous knowledge of the masses.

The Handbook also indicates a predilection towards a specialized agricultural training program closely structured along the experience of wealthy industrialized countries in the North. As several critical analysts have indicated, through the use of authoritarian teaching styles in the specialized curriculum attitudes of apathy and detachment from national concerns are imparted gradually on the future leaders of these societies which makes it impossible for them to take courage to challenge the marginalization that is rooted in the social order (Ortega y Gasset, 1964; Macedo, 1993; Piccone, 1987). The resulting mass production of technicians for the bureaucracies who are politically passive ensures the perpetuation of the status quo.

This kind of agricultural science curriculum which despises community-based knowledge production process and methodologies for its validation could be useful to organizations like USAID which need individuals and groups who lack empathy, compassion and solidarity with the masses to implement the harsh agricultural policies spearheaded by the North industrialized countries to satisfy their needs. Hence, such graduates can not hardly make any connections between their own privileged positions and the mass poverty and suffering afflicting millions in their societies day by day. As Piccone (1987) further notes, they are also unable to approach problems of social existence in original and creative ways as the socialization does promote attitudes towards working closely with communities.

In the single case where there was dissent by one instructor in the department of Extension on the issue, it was done in a highly guarded manner, suggesting the fear to "deviate from the norm" of the modernization paradigm:

> I may be having my own biases, but for me what I think is that these projects have been here, for me it has become a kind of dependence on projects. For how long is this going to be? Because like, for example, we have been having this MFAD project. MFAD is an acronym for Manpower or Agricultural Development. It has been here for 10 years and I may mention one particular aspect of this particular project. It was intended to assist in the financing of the programs being run in the Faculty but in such a manner that with time the university would take over their financing. A case in point is the maintenance of projects and vehicles which ideally the university has been able to take over. There is no sustainability and I have told you it has become a kind of perpetual thinking in terms of projects all the time.

This criticism of being dependent on externally funded projects has been highlighted by the critical analyst albeit increasingly the language of sustainability has also been adopted within the modernization paradigm.

Dismissed or ignored are the crucial concerns over the role of USAID in shaping the agricultural science curriculum according to assumptions and methods which are fundamentally inimical to the well-being of the majorities in Uganda but which benefit foreign interests and a small number of the local elite. Also, the critical analyst was silent regarding the massive environmental destruction that would undermine agricultural sustainability for the present and future generations through the increased emphasis on agricultural modernization backed by USAID. Instead the concept of "sustainability" was restricted to administrative capacity to maintain such things like vehicles. Thus, the failure by the respondent to take courage to challenge the deep structural inequalities in the global economy prevented him from placing himself in a favorable position to view USAID as an agency of world capitalism with a major agenda in the South to extract "surplus" with little consideration for the social welfare of the masses.

In fact, the same critical analyst, although aware of participatory action research as was confirmed in the interviews, boasted of teaching two new research methods developed by the Agency based on modernization paradigm.

> I have participated in the teaching of some course which were not previously within the curriculum, such courses like Research Methods (RE 304) in the third year is an entirely new course, then Social Research Methods (RE 409) is entirely new course and these are very very important courses. Because people used to leave this place without even the slightest knowledge of research methodology.

The important issue to be taken up more fully later is not merely the inclusion of social research methods courses in the curriculum but their relevance in enabling the students to acquire skills and attitudes that help them to courageously challenge the status quo in which millions are constantly under death threat from persistent starvation and recurrent famines.

Also, the critique on the "experts" was smuggled in with an apology. The instructor abstained from making a direct challenge on the inadequacies that are often associated with foreign teachers in South societies.

> They are not so bad but probably I have to mention one thing. At times since the local people do not have an upper hand in the selection of the so-called expatriates, the people who are selected to work in these projects may not have the relevant skills. May be somebody is qualified in temperate agriculture, I do not think he is going to present a nice show in the tropics.

This statement could be quite misleading. One could easily get the impression that local people actually have an important voice over who qualifies to teach in Makerere University. Mazrui (1992) knows a great teacher of Kiswahili in USA but who, due to lack of a formal degree, could not be granted a tenured position in any university. He laments the fact that in universities such as Makerere, the academic establishment has refused to acknowledge the enormous contribution which people without advanced degrees could make towards the existing knowledge. Instead, graduates from Harvard or Columbia are easily hired even though they may have irrelevant qualifications to the needs of the local society.

What also seemed to escape the mind of the same critic is that local professionals are themselves often outsiders to their societies especially when serious attention is lent to what critical analysts have said about the kind of training and socialization received abroad (Arnove 1982; Berman, 1979; Weiler). The "academic freedom" which is widely defended by African intellectuals in their universities is partly dictated to by their need to maintain "international standards" but which are closely monitored by their counterparts in the North (Chinweizu, 1975; Mazrui, 1992; Okot p"Bitek, 1973). It should be noted further that in some cases foreign students may not really be interested in gaining any useful knowledge for use at home during the course of study as the overriding aim is simply to obtain prestigious titles linked to lucrative positions (Dore, 1976; Oxenham, 1984; Hudson, 1992). Apart from the common insistence by some instructors in Northern universities for foreign students to follow irrelevant programs, this drive to earn the degree per se is equally real. From the perspective of development education, such training is clearly a liability to the poor majorities who shoulder the cost of public education.

Finally, the critical analysts cited above was right in pointing out that in many cases the expatriates have never followed programs of study in their lives which could enable them to understand the social realities of underdevelopment. Given the "hidden agenda" by the international agencies, it is quite unlikely that these "experts" could be progressive people selected on the criteria to solve social problems in the South. As noted by Altbach (1972), quite commonly such "experts" may not even be the best in their own societies as well-placed professors are normally unwilling to work abroad and despise consultancy research as inferior. Since international agencies play such a significant role in hemming the rest of the world to the North, it is useful to focus a little more on their role in shaping the research agenda in the South societies by looking at what instructors said about their role in agricultural research in Uganda.

5. 5 International Agencies in Research for Rural and agricultural Development

The role of research in rural and agricultural development is crucial in providing new and vital information to be utilized in making better decisions regarding human survival on the planet. For this to be possible different societies require specific research priorities which are determined by their social needs as well as the necessary funds to execute their research plans. Increasingly, poor societies in the South have become extremely dependent on external sources of funding for research activities with the result that their domestic research interests have been highly compromised as the agenda of the donors prevail (Rathgeber, 1988; Samoff, 1992; 1993; Petras, 1991). Apart from playing an active role in shaping the agricultural training curriculum at the university as indicated above, USAID in conjunction with other international agencies have successfully hemmed the national agricultural research system in Uganda to the Consultative Group in International Agricultural Research (CGIAR) and as a result, brought the system under close control and supervision by the needs of the world food regime (Howe, 1975; Feder, 1979).

In the preceding subsection, one senior academic cited the role which USAID has played to introduce off-farm trials or what he called "Research-Extension-Farmer Linkage" to be conducted on selected farms. Although the instructors felt that this made a remarkable difference from the previous research approaches where all research was done in the stations, in reality there is very little difference. The instructors or the scientists, though working with the farmers, still are in control of the research process by taking a lead in framing research questions as well as making decisions about methods to be used and how the findings are to be interpreted and disseminated. As a top-to-bottom approach to agricultural research, the selection of the individual farms as sites for study are guided by what agricultural scientists regard to be "progressive farmers" who are supposed to teach the rest of the farmers as we noted in the previous discussions (Rogers, 1983; Benor & Harrison, 1977; Gatere, 1988). The failure to underline this point by senior instructors has serious ramifications for the needs of rural and national development.

There is need also to remark that the renovation of Kabanyolo University Farm using funds from USAID resulted from the need to promote a particular research orientation based on modernization assumptions in which the superior knowledge of the agricultural scientist is assumed in advance. The point is that this agency could not have promoted paradigms in research which seek to challenge its vested interests in profit making in agriculture. Hence, the research paradigm based on the superiority of modern scientific knowledge but structured along the needs of the agricultural economy fully supports the economic and the political interests of the US. One distinguishing mark of this research orientation as noted before is the absence of a two-way flow of information between farmers and scientists as demanded by the critical paradigm.

Further proof of the top-to-bottom research paradigm is also found in the internal Final Report (1993:50) of the MFAD program itself. As it reads,

> A case study of Makerere University Agricultural Research Institute, Kabanyolo, ascertained the nature of research done at the institute and assess the Institute's impact on farming practices in surrounding areas. Most research programs were found to cover commodities and problems relevant to the Institute's surroundings and the country at large. However, only a few of the research programs yielded technologies that could be applied by farmers. Moreover, the few farmer-usable technologies available at the institute were not widely adopted among the farmers studied. *Most of the potential adopters were not aware that such technologies existed at the Institute.* The institute could increase the utility of its research to Ugandan farmers by conducting more adaptive research, strengthening its links with the agricultural research institutions outside

> the University, and establishing a formal program for reaching out to farmers and extension workers. (*My emphasis*)

It is important to keep in mind that Kabanyolo Farm, as the Dean had explained, is the key institution for training agricultural science students as well as the site where the instructors have developed a Socioeconomic Laboratory for extension work. Looking at the above quotation, that added emphasis is meant to draw attention to the exclusion of the farming communities from the research process right from the beginning. As several critical analysts have commented, a genuine beginning for resolving the crucial problems of poverty and underdevelopment lies in the active involvement of farmers in the development of appropriate technologies (George, 1994; George, 1976; Chambers, 1983; Spitz, 1978). The widespread neglect of this approach to rural and agricultural development in all interview data and from the documents which were analyzed presents serious problems. Simply put, the status quo maintained by political and economic structures which deserve to be challenged by the researchers are instead reinforced.

It is therefore noteworthy that the research orientation being consolidated in Uganda is driven by the national agricultural policy geared towards export agriculture as demanded by the Economic Recovery Program as a local collaborator with the international agencies and North governments. In brief, all funding for national agricultural research is tailored to meet the single-minded agenda for increased exports as stipulated in the National Agricultural Research organization (NARO) which was recently created. Writing about the weaknesses of crop research in Africa, Timberlake (1985) has outlined three important sets of problems; (1) it attempts to create varieties, of either local or exotic crops, with characteristics adapted to a type of *intensive farming* often unsuited to local conditions; (2) it concentrates on technical aspects of agronomy (yields, rate of growth, stem length, etc.) at the expense of social and economic research to discover the acceptability of any innovation; (3) and it fails to learn from local conditions.

Looking at the research topics listed in the Final Report (1993) of the MFAD program conducted by Makerere University instructors and scientists in the Ministry of Agriculture, the three observations Timberlake makes are self-evident (see appendix E). There was absolutely no interest in social aspects of agriculture which could generate useful knowledge on the various dimensions of poverty and underdevelopment. The overwhelming emphasis in experimental studies on various crop varieties which were conducted within the field station, also excluded the accumulated indigenous agricultural knowledge and cultural practices by the surrounding communities. This is a clear testimony for a research strategy which devalues what real farmers think and do in agriculture. It has been embraced throughout the training program out of the beliefs held by scientists and administrators regarding viable research problems and research approaches.

Despite these shortcomings in the orientation of agricultural research for development, nearly all instructors interviewed were of the view that agricultural research environment had greatly improved through their collaboration with government scientists under NARO. As one senior academic proudly put it when requested to comment on this matter,

> Yes. We formed teams. Some you find they are led by personnel from here, other teams are led by personnel from the Ministry depending on say, if we have staff more knowledgeable in a particular field or has vast experience and seniority and what not, such a researcher leads the team. If *he* is from the University, *he* leads the team but what we call Socioeconomic Study are led by the faculty, Department of Agricultural Economics. These are the ones who deal with surveying; informal survey, formal surveys, diagnostic studies before actual research is done such that you know the actual farmers condition in advance.

The two NARO documents to be analyzed later in chapter six clearly outline its main objectives and administrative arrangements. The socioeconomic studies referred to above is to assist as a support to technical groups by conducting surveys before the actual research is commenced. As Altieri (1989) argues, the perverse tendency by scientific research to accord a marginal role to social science in agricultural development greatly diminishes the capability of the research establishments to generate findings which lead to a holistic understanding of social reality and the problems which may confront particular farmers. In his view, there is need to consider seriously the role of indigenous knowledge systems in modern research especially due the fact that traditional communities have accumulated wisdom regarding problems of nature and social organization over several generations.

Whether such a view receives serious attention in the Ugandan context depends on what the official policy on research stipulates as well as the research orientation of the individual researchers. Judging from the NARO documents as well as some statements from researchers, it is safe to conclude that the social needs of the masses do not receive attention they deserve as little provision is made for social analysis. As an agricultural research policy which did not emerge out of grassroots participation as the NARO documents themselves testify, it is quite unlikely that the real problems and issues of development are correctly identified and resolved. By implication, researchers who may show a predilection towards social research along the lines of grassroots-based development are likely to be marginalized and excluded in the dispensation of scarce funds.

In the interview conducted with the Faculty Dean, it was confirmed that active collaboration exists between university instructors and government scientists. In his words,

> We have collaboration with the research scientists in government. We form teams to tackle any given research problem. We work very very closely because we are a component of the National Agricultural Research System (NARS). We have 6 research institutes here: Kawanda, Namulonge, Serere Agricultural Research Institute, Fisheries at Jinja, Forestry Research at Nakawa, Livestock Health Research Institute. Those currently are research institutes under an umbrella research organization known as NARO. For us, in as much as we teach and do research in agriculture, we are a component of the National Agricultural Research System (NARS). We work closely together.

One main problem that persists in national development throughout the South is the tenuous relationship between researchers and policy makers (Rathgeber,1988). Although the collaboration between university instructors and government scientists could be looked at as one way to make an effective link between teaching and research, the relevance of the research done is diminished by the way in which the research problems are identified by excluding the real users. As a result, the benefits are likely to accrue to only a small group of "progressive farmers" who are in touch with NARO officials and scientists.

Similarly, when asked about the relationship between the Faculty and government scientists in doing research, one junior instructor who had recently joined the Faculty responded as follows:

> That is very important. It is in place and when you talk to senior professionals in this Faculty, administrative people, you realize that it is taking place. There is collaboration between the Faculty and government scientists in various aspects. In fact, recently our Dean was quite instrumental in formulating the National Organization for National Research (NARO) involving academics, policy makers and so that linkage is there.

There was not a single instance in which any instructor was less informed about the activities conducted under NARO largely due their own deep involvement in the formulation of the national research policy. Also, in no single instance was serious criticism made on either the formation of NARO or the research mandates reflected in its documents. As beneficiaries from the lucrative research grants provided by the organizations, it is possible that the perceptions held towards it were partly influenced by this factor although lack of awareness over the dangers inherent in the research strategy appeared quite real.

It was stressed before that famine and hunger result from policies and research agenda which are dictated by the export-led agricultural economy. In a majority of cases, arable land is devoted to non-edible crops like jute and sisal as well as to beverages like coffee and tea on which the North has become dependent. Furthermore, as Turshen (1989) argues well, food that could be eaten by people such as groundnuts (peanuts) and sesame are exported for their oilseed by governments hungry for foreign currency needed to sustain imported lifestyles. The research agenda stipulated in NARO to which the academics are closely wedded is guided precisely by an export-oriented agricultural policy which shows a high potential to make the masses vulnerable to famine and hunger. The lack of awareness or neglect for the polarizing effects of such an externally-sponsored research agenda by professional and academics constitutes and important issue for development education.

In a single instance where there was criticism about research done by the academics, emphasis was placed on the failure by many to conduct research as required while leaving the fundamental issues relating to NARO as a possible oppressor of the masses out of sight:

> When you look at our peculiar problem here there is some dishonesty in people these days. There are cases when people get research funds but do not generate useful information. They get the funds, they use the funds for other purposes and therefore the funds and not used to generate knowledge that would be useful to the farmers. In other words, what I am saying is that although there is funding, I will give you example especially this MFAD program, funded a lot of so-called research projects in this Faculty but none of these research projects generated any useful information for us because people never did the research. Money was just squandered. I understand in fact that one of the coordinators of that MFAD project wrote a bad report.

The concern as indicated above is simply that research was not done. Whether or not this claim was true could not be verified especially as instructors tended to evade any discussion about their own research. But this is nothing new or unique to them as Mkandawire (1993) also asserts that in Africa in general it has become a common practice for social scientists to fail to account for funds or even to produce relevant research which could be beneficial to society. Indeed, individual researchers could be handicapped by the inability even to define any real problem in agrarian communities due their socialization at home and abroad. In such cases it is quite likely that research cannot produce any relevant knowledge as a way to account for the research funds.

However, he made a valid point in drawing attention to the universal tendency by scientists to conduct research merely to gain fame as well as funds:

> And then there is the third one. Again it might be peculiar to our situation here but it might be general. There are no guidelines in this country to do research which solves specific problems. You find somebody gets *his* research funds, there is no monitoring whether that research is really a priority of the country's development. That is, there are no set priorities.. You can do research, in other words, research is done haphazardly, some of it is irrelevant to the farmers needs. *You find that people try to duplicate research which is done in America or Europe but which is irrelevant to our conditions here.* For them the priority is publication, that is the next point I was coming to. You find in the university here people are attaching more emphasis on publication. What people are interested in is getting a research to publish but not getting research to generate useful information to improve the conditions of the farmers. (*italics added*)

The emphasis added is an important reminder of the studies conducted by the students as part of the training at the Faculty. As noted, there were cases of reports which contained research approaches and information which could hardly be regarded as relevant to the rural masses or which ignored the social reality of the farmers. Had the respondent given specific cases of such researches then it would have been probably easier to comment on what was thought relevant. However, although the particular instructor could have made a critical observation, he did not appear to want to make connections between the advanced training and the duplication of research as he claimed. Similarly, little concern was shown towards the intricate internal and external forces that shape research policy and processes as the blame was placed wholly on the individual researchers. Considering the active involvement of international and national forces is shaping the agricultural research agenda in Uganda, no public policy which genuinely seeks to address the needs of the masses could be expected to emerge.

The fundamental issues in research policy and implementation have less to do with lack of funds or even the neglect of the individuals to conduct relevant research as suggested but are largely matters related to the contest or struggle over the definition of knowledge in which external and national interests collide. It is important to note that every society has its regimes of truths and well understood methods to access and legitimate such truths but for South societies the real obstacle to development is the continued suppression of local knowledges by international forces that seek to maintain hegemony at a global level. Hence, although the local needs and interests of the masses in

Africa are well known by the agencies themselves, what is more crucial are the intricate mechanisms used by North agencies to perpetuate world views, research methodologies and approaches in the production and legitimation of knowledge which ensure the continued poverty and underdevelopment of the continent (Samoff, 1993; Petras, 1991). In consequence, the entire educational systems are closely controlled and supervised by international agencies but always with the active support of local intellectual bureaucrats and administrators who are funded by the agencies themselves (Achola, 1990; Eshiwani, 1990; Galabawa, 1990; Kiros, 1990; Magalula, 1990; Mavaranyika, 1990; Odaet, 1990). In the specific cases of agricultural research in Uganda, the absence of any serious dissent among the academics as well as government scientists over the research mandates of NARO would be regarded as a testimony for their willingness to identify with and embrace research methodologies and ways of knowledge validation dictated by the North but which perpetuates dependence and poverty.

As critical analysts suggest, research can only be meaningful and useful for the majorities where their active and genuine participation in various stages of the research process is actively promoted (George, 1994; George, 1976; Chambers, 1983; Deshler & Selner, 1991; Tandon, 1988; Freire, 1988). The participatory action research implies a radical re-definition of knowledge which leads to grassroots-based methods of knowledge production and validation but which also hold a lot of promise for the emancipation of oppressed groups in society. The evidence available through various interviews and the various documents suggest a preference for an anti-people research agenda directed to perpetuate poverty and dependence by the Ugandan society. Before taking a look at the views expressed by instructors on the general theme of curriculum relevance to meet the needs of the poor, it is useful to examine their views on the role of women in development as a topic of recent scholarly interest.

5. 6 Women in Rural and Agricultural Development

The role of women in development has received global endorsement in scholarship to such an extent that hardly any discussions on national development could be regarded complete without paying attention to it. The two women in the Departments of Food Science and Agricultural Economics provided the information which complemented views from administrators and other instructors on the subject. It needs to be pointed out at the out set that several instructors did regard the issue of women in rural and agricultural development as not worthy of their attention especially for the "technical people" who need not be bothered with social analysis. However, some insights on the subject were obtained from a number of respondents.

The views of the Faculty Dean regarding the important role of women were exemplary. For him,

> Women are admitted to the University if they qualify. Right now women constitute roughly 22% of the enrollment. In the short run we should be able to raise it to 30%. If you are talking about women in development, there it starts. We admit them and we train them here in agriculture and some of them proceed to higher degrees. Without having to have a specific course, because this is done in another department here in the University known as Women Studies. *Ours come in as students and with the opening of the new program known as Food Science and Technology, we are seeing more and more women in the Faculty.* (*My emphasis*)

The italics added draw attention to the sexist nature of his language used. The impression given is that certain fields of study are unsuitable for women while others should be their monopoly. Also, as shall be shown later, bureaucrats interviewed expressed a similar view.

Likewise, when asked whether Women in Development needed emphasis in the agricultural science program, a senior instructor and administrator responded as follows:

> May be we should yes. Because in our training program we have taken care to training women counterparts. In fact since the MFAD program started, we have taken quite a number of women instructors and trained them to Ph.D. level but the number is still definitely lower than male counterparts but definitely our training has addressed that. We now have two ladies in Soil Science. One has gone for Ph.D. We have about 3 in Food Science and Technology, then we have 1 in Crop Science and about 3 in Agricultural Economics but some are still Assistant Lecturers. We also have 1 in Extension. In the Ministry, it is even more striking because there are quite a number of women researchers and women teachers at Agricultural colleges.

Clearly, the issue on women in development is reduced to the contest between women and men in the Faculty establishment. As implied in the quotation, the cure is to recruit more women as university teachers. What happens to women recruited was not analyzed. This was consistent with the view which defines the marginalization of women as a result of their exclusion from the educational system and other social sectors of the economy but which bypasses the crucial issues of power relations. Another instructor challenged the "affirmative action" currently practiced in Makerere University as follows:

> Well, I think I have met some people who have alleged that conducting segregation with segregation may not be very successful. I think that is what people call affirmative action, positive kind of discrimination. That is ideally what is in place here, giving those school leavers free points to come to the University. That positive discrimination kind of again marginalize women. It puts them in such a position that they are inferior, they have to be helped whereas I think there are better options than that. Let me take a case in point. Take for example, free primary education, there are many female children who never go to school and you cannot identify who would have been a nicer competitor as far as female gender is concerned. So starting at this stage is appropriate, it would be nicer to start at the grassroots, at the ground level, not at the higher level. At this higher level, you are just helping daughters of Ministers, daughters of the well-to-do because I tell you frankly, I come from Rakai, I have seen how much suffering is being experienced by our people down there... For me I have a very deep conviction that our African leaders have served greatly to exploit our people.

The instructor appeared convinced that free primary education would solve the poverty faced by women as a social group. However, he seemed to forget that educational costs when properly assessed, include the expenditure for basic needs which rural people cannot any longer afford. Furthermore, he introduced confusion into his analysis by taking the education provided in schools for granted. Consequently, there was a general failure to see how structural inequalities exclude certain segments of society from gaining access to schooling and the role which schooling itself plays in the reproduction of the basic inequalities and injustices in South societies. In short, even where granted access, children from poor backgrounds are unlikely to persist with schooling that is based on alien knowledge forms and processes. As Macedo (1993) argued well, the kind of literacy needed for the oppressed should be channeled towards the development of critical faculties rather than the promotion of "stupidification" of the masses.

In sum, in all the interviews conducted, instructors tended to see poverty and underdevelopment of women as social group as a result of the conflict between men and women and women and women (Bernard, 1987; Boserup, 1970). The proposed cure is to equalize opportunities on gender basis while leaving intact the basic social and economic structures that sustain and nurture social inequality and poverty. Critical feminist analysts have a different view. They reject the use of Eurocentric categories of thought in the interpretation of social reality of the "Third World" women as ahistorical and blind to cultural configurations which continually shape perceptions and social identities. (Mohanty, 1991; Moraga & Anzaldua, 1983; Anzaldua, 1987). They also add that "Third World" women who are bent on applying middle class consciousness as conduits for understanding the experience of the masses mask the historical experiences that are the product of social interaction in different regions. As Giroux (1992) puts it, the struggle ought to be directed towards claiming and reasserting the importance of a discourse and politics of location that recognizes how power, history and ethics are inextricably intertwined so as to position, enable and limit our work within the shifting relations of power. To accept therefore a discourse which stresses the idea of "our common culture" descending largely from the Greeks and the Bible is to endorse a racial interpretation of world history which has largely been responsible for slavery, colonialism and the new but more subtle forms of domination in which women are positioned most unfavorably (Kimball, 1991:6; Ravitch, 1991).

Asked what she felt about taking serious steps to incorporate women studies into the rural and agricultural program in the Faculty, the two women interviewed saw little point in taking such steps, arguing in support of others that already relevant departments and Faculties within the University charged with that task existed. According to one who at the time was also the Chair responsible for teaching and directing courses on rural and agricultural development,

> We do not teach political economy or politics as such. Whenever we are confronted with issues of a political nature, we simply skirt around. Perhaps people in Political Science could do it. And then with women in development, there is already a department in the University which deals with that but for me, it is simply my personal interest.

Accordingly, students are denied the opportunity to gain working knowledge on the marginalization of the masses that is a result of the operation of the world economy but which positions "Third World" women more unfavorably than men. Studies have also reported that women's health in the South has deteriorated considerably due to a combination of forces associated with the operation of local economies which not only drain men away from the countryside and leave women taking full care of agricultural activities, children and the elderly limiting their ability to cope especially during times of war (Turshen, 1991; Turshen & Halcomb, 1993; Akeroyd, 1994). When compelled to escape rural famine through migration into the cities, women have faced the worst social experiences as they struggle to put meat on the table by engaging in the informal economy including selling sex. The current AIDS epidemic, despite dearth of reliable data, has undoubtedly imposed death and hardships on the poor especially in slum and rural areas in the South societies. Hence, it would be useful for students enrolled in agricultural sciences to graduate after obtaining a general understanding of the rural economy in order to apply theoretical knowledge to the solutions of social problems in a practical way.

It was also noticeable that the discussion on women was often directed on the students and the instructors within the Faculty with little reference made to rural or slum women. It would appear that in universities based on the ideas of Enlightenment which are today masked in the notion of "modernity", the general tendency is for the intellectuals to make constant reference about each other without paying attention to the wider social order. Living an institution which is sealed off from the public, the academics are only likely to make minimal interaction with ordinary people in that society.

Thus, implicit in the diagnosis made on the visible poverty and underdevelopment of women as social group within the modernization paradigm is the corresponding necessity to draw international agencies to provide "assistance" to mitigate poverty among rural communities (Heyer, 1981; Williams, 1981; Bernstein, 1992). The agricultural Sector Memorandum (1993) to which repeated reference has been made is filled with doubtful prescriptions viewed by its proponents to be critical to the eradication of poverty of the masses. Women become terribly impoverished once channeled to the modernization paradigm of working for agribusiness as cheap labor for the production export crops (Hines & Dinham, 1983; Burbach & Flynn, 1980). Issues of this nature need the attention of professionals and highly educated citizens who are charged with the onerous task of lifting the living standards of the masses who continue to provide advanced education.

5.7 Views on Curriculum Relevance for Rural and Agricultural Development

Issues on curriculum relevance which were extensively explored revolved around why the agricultural program which had previously run for three years was extended by an additional year, what instructors felt about the suitability of that curriculum in meeting the needs of the masses as well as their views on the performance of the students. My interest was to gain some understanding regarding curriculum design and implementation and the basic assumptions which underpin educational theory and practice in the socialization of future rural and agricultural scientists. The views expressed by a number of instructors tally with what various documents such as the Visitation Committee report (1987) as well as the internal documents to the Faculty such as the course outlines, research reports, theses, reading lists and examination questions reflect on the issue of educational development. Briefly stated, the agricultural science curriculum is based on the need to satisfy the objectives in the national development plan dictated by the need to participate in international trade relations. As such, it shows little concern for the domestic food needs for consumption as stated before.

The first query sought to solicit views from the instructors on why it was necessary to extend the program by an additional year against the increased costs to be borne by the masses. According to the chief academic and administrator in the Faculty,

> It was extended for many reasons. One is to give ourselves time to impart to our graduates more practical skills. In the previous program which was three years, we did not cover the practical side of agriculture and Forestry. In other words, the "hands on" skills were not receiving the kind of attention, not given enough time to cover then. The next one is the changed nature of employment available in the country for our graduates. originally, the traditional employer of the graduates was government almost entirely. Government absorbed all the graduates, that is, when we graduated between 20-40 students a year. Today we are graduating over 100 students per year and government does not have the capacity to absorb all the graduates. So they have to look for alternative employers. So the nature of employment over time has changed from agricultural extension and research to other employment opportunities which exist either in industry or banking system or self-employment. In other words our graduates themselves becoming farmers.

Likewise, a senior instructor who had been instrumental in the extension of the program to four years observed as follows:

> One is that we were looking at why the students were not managing to pass well. The performance has always been low. We have been having from 75 to about 86 students getting one Upper Second degree. So we decided to carry out an evaluation of the graduates who were working and actually I conducted it myself for the period between 1968 to 1988. We found out that the graduates were actually deficient and were indicating that agriculture is very wide and three years would not be enough to cover a lot. If they did it would be mostly theoretical, they would not be able to get practical orientation and in agriculture if don't have what we call "hands on" you would not be able to teach a farmer because you yourself do not know, you only know theory but you cannot show. And they were criticisms from government, Ministry of Agriculture that agricultural graduates were deficient practically. So it was decided that the curriculum be reviewed. It was reviewed and recommended to put a lot of emphasis on practical work.

One instructor after another who were interviewed stressed the role of practical agriculture in the effective training of the students. As cited before, one praised the program extension for allowing additional research courses to be taught before students graduated from the program. In fact, looking at the Handbook and what students reported on the program extension, more theoretical work rather than practical agriculture has been covered during the entire period of training.

Two important observations need to be made regarding the above revelations. The first is the old point that in any agricultural science program with a heavy emphasis on the need to earn credentials, engaging in a practicum out of which knowledge to be used outside the university is to obtained can not be a priority for both the students and their instructors. In fact, as one citation stressed, the attainment of top grades was an influential factor in the extension of the program. Secondly, the decisions regarding which courses to include and exclude in the curriculum is an internal matter to the Faculty. This is consistent with the need to defend "academic freedom" often jealously guarded throughout the South colleges of agriculture and universities (Fanou & Daane, 1989). The point is that what students learn is what the individual instructors regarded to be important rather than what meets the social needs of the masses. Given that there is minimum contact between various University organs in general with the Ugandan communities, the likelihood of the instructional processes to be guided by the biases of individual instructors is quite high. In instances where the public is said to have been involved in curriculum matters, as in the case of the extension of the program by one year, such participation has still come from elite groups like the government bureaucrats. This visible anomaly raises serious questions on the usefulness of the University education for all groups of the citizens.

For the agricultural science program to effectively respond to the needs of the rural poor, the procedures that need to be adopted to effect changes should necessarily capture the views of a wide section of participants in grassroots development. This approach would include the views of NGOs and peoples' social movements which are in constant touch with rural needs in the joint struggle towards resolving problems of poverty and underdevelopment. Following George (1976), if one accepts the view that talking to one's farmers would be potentially helpful in coming up with viable indigenous solutions to problems and issues related to food in societies like Uganda, then there is need to question seriously the relevance of an agricultural science curriculum which ignores the views of the rural poor. As earlier discussed, a critical orientation to agricultural production requires a deep understanding of problems which rural people have experienced for many generations. Thus, the extension of the program on the grounds advanced by the instructors is quite questionable in terms of the potential benefits which are supposed to accrue to farmers. If anything, the rural poor are bearing the heavy burden of financing the agricultural program for an additional year.

Intensive investigations were also conducted on what the instructors felt about the extended program which had produced its first bunch of students. All instructors revealed that an evaluation was still going but some quite defensively gave their personal views. As one of them put it,

> We have had some constraints, the major one being lack of finance in the University such that even if we would like to have students spend as much time in the field, very often we have to cut down the time because there are no funds and this has been true throughout the four-year period. Because in the second year where we would like the second year agriculture students to go out and visit different ecological zones, because of lack of funds, we have not been able to fully achieve our objectives in training in practical work.

Another instructor who was asked to express his views regarding the relevance of the extended program for rural development also failed to bring forth any critical insights.

> In fact that is a concern and we are reviewing again, we had a mid-term review and I am again conducting it to find out what might have gone wrong. I have not analyzed the data, it is now being entered into the computer but looking through the responses from the survey, you find that they say although time is there for practicum, the implementation became difficult because of finance. Students were supposed to have been attached to the field for 15 weeks, they have not even been there for one week! That makes it difficult because of funds. Secondly, the timetable here looks congested but I think that will be looked into to see what causes it.

The shortage of funds for research was repeatedly cited as the major bottleneck for the failure to conduct research for both the students and their instructors. It is necessary once again to note that even the Visitation Committee made similar observations in its report currently is use to guide University restructuring. Overall, the suitability of the research to society for which the funds were sought was generally taken for granted.

In a rather lengthy exposition the instructor immediately cited above was nevertheless pleased to see that despite the difficulties they had faced, the particular cohort of students had obtained better grades that the previous years.

> But it has improved because this year we got I think 27 Upper Second and in fact the students were a bit active. They said that they expected a First Class. We are hoping that this year Agriculture will come up with a First Class in this four year program.

The informal conversations held with students who continued to hang around revealed that they were happy with the grades obtained by the entire group. The previous "bad" publicity regarding poor grades in the Faculty appears to have been a matter for concern in influencing the new outcomes. As shall be shown later, government officials with the Ministry of Agriculture were equally optimistic that the changes in pass grades would tremendously improve the training for rural development.

When queried to comment on the students admitted into the agricultural science program, almost all instructors without exception decried the students' lack of prior experience with farming. As the Dean put it,

> The majority of this students come from the best schools in the country. Now how many peasants can afford to put their children through these schools? So it will be my children, somebody's children, Prime Minister's children, Permanent Secretaries and others who may get their kids in these schools. The majority of these children are city-born, city-bred, city-reared. They do not even know which part of a cow gives milk. But because they took Biology, Physics and Chemistry, they may end up in Agriculture. They have never held a hoe in their hands all their lives. But somebody from a rural area who has grown maize, potatoes, bananas and looks after cows, that person will understand agriculture better than the city-born, city-bred and city-everything and that is another problem to the extent that when we get them to do practical work or "hands on", you find these try to avoid this kind of work because they are not used to it. And we require that each student who goes through us here must at one time or another in the second year at Kabanyolo gain practical skills. We allocate each student a piece of land, a very small plot where they can grow a crop for a short duration, an annual crop and often vegetables. What we expect of the student there is *his* labor. We provide all the inputs, seeds, chemicals, fertilizers and we want *him* to keep a record of what is happening in the plot, to carry our operations which are required to produce a crop. In the end the crop is *his*, *he* can sell it. You find that despite being an incentive, these students who are city-born, city-reared and city-everything, they do not want to do it. Because it is obligatory that they must do it, you find that some of them try to hire labor from their fellow students or from outside.

The statements above raise questions which are crucial to understanding agricultural science program at Makerere University. To begin with, the issue of the non-farm background of the students is neither new nor unique to Uganda (Helsel & Hughes, 1984; Hasslen, 1984). American Colleges have been battling with the same problem for decades which they have attempted to resolve through a systematic exposure of their students to the real farming situations. The agricultural program at Makerere University, although it correctly identified the problem, has not taken radical steps to attend to this matter. Instead, as shall shortly be reported, the instructors rejected to recognize the merits that would accrue to them through a systematic exposure to pedagogical and related issues.

Furthermore, as Alatas (1977) has indicated, rural people are not necessarily or automatically more competent in bureaucracies. The point is that students with a prior exposure to rural or urban farming as commonly occurs in Uganda are not automatically the best for agricultural education. Regardless of the students background, what is important are appropriate educational processes which help students to question their previous experiences that are brought into the colleges as well as to provide challenging intellectual opportunities for students to integrate theoretical understanding with critical development strategies (Giroux, 1988; Freire & Macedo, 1987; Apple, 1982). The instructional strategies need therefore to be guided by goals that directly lead learners to interrogate their earlier experiences in relation to needs of the rest of society whose interests and concerns ought to be reflected in the curriculum. In particular, the students should be led to scrutinize what they believe about themselves and others and examine how such beliefs have come to shape their outlook towards others.

Also, the so-called incentives offered at Kabanyolo are meaningless when note is made of the fact that most students are from the upper socioeconomic origins in Uganda. Nor is it surprising that some students could employ others to perform farm work for them. Finally, as earlier discussed, there is no sensitivity given by instructors to the possible environmental destruction caused by agricultural chemicals. A related aspect was that most instructors appeared to be overly concerned with the technical aspects of farming without regard for what farmers actually do. It bears reiterating that the kind of training under the artificial conditions in Kabanyolo is hardly interested in a systematic exposure of the students to farming as a way of life in which they could be brought closer to farmers.

Still on the issue of the social origins of the students, one instructor provided the following information:

> ... Now we are seeing a situation developing where fewer pure rural children come to the University. We are seeing more and more urbanized students, students who have been born in the urban areas coming to the University and it is particularly bad for agriculture. It is perhaps good for other Faculties but it is not good for Agriculture because agriculture is a rural profession. So we have had that problem where you expect even an Etesot or a Munyankole-these are the people who keep cattle- we are seeing a situation in which you find a Munyankole or an Etesot who cannot even milk. I mean when we take them for practical training and you say "Can you Milk?" *He* can not do it... and these animals are very docile they are not like our village animals which are very dangerous sometimes.

One instructor after another complained about the social origins of students especially in relation to practical work. In the words of a leading extensionist in the Faculty:

> I think at the end of this academic year there were about four students who were going for their special projects and I was cracking a joke with one of them from Tororo District. "I think you are now staying here?" "No I went home and came back". The I said "When will you be going back because you are supposed to go now and have more time, live with them, and find out their problems and not stay here?". So you can really imagine that this was the tendency. And when it comes to posting they shun going to rural areas, particularly girls who find problems in going back.

Thus, the practicum component of the curriculum as designed by the policy makers and instructors does not provide a relevant structure for educating students to work jointly with rural people in the struggle to overcome poverty. On the other hand, such a lack of socialization in participatory grassroots-based rural development theory and practice does not diminish the capacity of the graduates to succeed in a modernization paradigm of agricultural "progress".

It useful to recall that some students themselves were quite critical of the experience gained under the agricultural science program at the University. A number of them said that the program did not attempt to overcome the inadequacies of urban-biased origins of students. As one puts it,

> I think even the type of students we take in our field, well, most of these students come, they stay in Kampala urban areas. Very few come from rural areas and therefore one would go, for example, in Agricultural Economics all want to work in the bank, projects in town, in projects that have little importance to rural areas. For example, sometime back we went out on a study tour as a group and we walked around and then we came to a place and then one student said "So this is what coffee looks like?" (*laughter*). Does not know what coffee looks like... So we went to Namulonge we looked at coffee, students had never looked at coffee, had never touched it. So we looked at coffee but we did not touch it. So what I am saying is that students should do their agriculture in rural areas.

Implicit in the statements above is the point that the skills and attitudes students obtain in the agricultural science program do not appear to predispose them to show concern and solidarity with rural farming in order to become critically sensitivity to agricultural concerns. However, such blame laid on the social origins of the students by instructors and even some students themselves cannot be accepted easily. A program of agricultural science based instead on critical theory and practice should remedy the city-based biases among some of the students.

Yet when queried about what they felt could be done to improve the teaching of the agricultural science program at the University, the dean of the Faculty summarized as follows:

> You know when you say improving teaching, all of us here are not teachers except probably you in Education. The majority of us are not teachers. *You know that we are not.* We do not go through all these rigorous programs as you sometimes do, say teaching methods, evaluation, preparation of your lessons, whatever you do, we never do these things. We just find ourselves in the classroom teaching. (*My emphasis*)

In the foregone analysis, the issues related to teaching methodologies have repeatedly been pointed out. As shall be shown in subsequent discussions, although the *White Paper* as a condensed version of the "Kajubi Report" currently being discussed by the Uganda Government recommends teaching training for all instructors in higher education, its achievement is bound to be an uphill task judging from the remarks made by the agricultural scientists. In fact, nearly all instructors did not regard the question pertaining to pedagogy to be of any relevance to agricultural training including those in the department of Agricultural Extension. Hargrove & Sims (1980) report similar resistance from American teachers of agriculture who see very little use in teaching training.

5. 8 **Examination Questions in the context of Development Paradigms**

The Faculty Handbook contains a complete set of regulations governing the agricultural science program at Makerere University in terms of its course unit and final examinations. The course unit examinations are internal to the Faculty as they are set and graded by individual instructors. They are based on a formula of not more than one hour duration for each half unit although additional time could be given especially in cases of practical work. Their purpose is to examine in detail a whole range of material covered by a particular course for which grades are awarded by the instructors and adds to the final grade earned for the degree. The University examinations, on the other hand, though set by individual instructors, are coordinated centrally by the Academic Registrar of the University and are normally written by all University students at the end of the academic year. The regulations indicate that all the final papers and the special projects are examined by an internal examiner but have to be moderated by external evaluators who are normally from neighboring universities. Also the computed grade from course work and final examinations are used to distribute students to four degree classes available from first class to a pass. In between are second class (upper division) and second class (lower division). Those who fail to attain 40% (which we were told had been raised for students enrolled in Agriculture) are either referred for supplementary examinations or discontinued from the program but the latter rarely happens.

A sample of final examinations were selected for close analysis based on the competing paradigms of development. In particular, the selection of the questions was influenced by the need to include more relevant departments to the theme of study like Agricultural Economics and Extension. On 17th June 1993, the University administered a final year examination on *Practical Skills* with its second question running as follows:

> President Frederick Chiluba of Zambia has decided, as a matter of national food security, to become self-sufficient in the production of maize, the staple food of Zambia. Maize is now imported in relatively small amounts. His Economic Policy Committee is debating whether to achieve this objective by means of a production subsidy or an appropriate import tariff. Imagine you are an expatriate working with World Bank in Zambia and you are called upon to advise. Write a memorandum addressed to: The Chairman, Economic Policy Committee, Ministry of Planning and Development, P. O. Box 0001 Lusaka, Zambia. Your memo must include detailed and well defended suggestions on this issue.

To begin with, as Heyer (1981) asserts, rural development is planned changed outside rural areas in which there is international and local collaboration. The question as it stands is intended to promote a positive assessment of international agencies in national development in societies like Zambia. I have already reported in the interviews with students, instructors and governmental bureaucrats a similar evaluation of these agencies in rural and agricultural development. The role of the World Bank in the creation of poverty is fully documented by many critics although in this question it has been hidden away from the students (Bello, Kinley & Elinson, 1982; Feder, 1976, 1979; Gran, 1984; Stryker, 1979; Ihonvbere, 1994; Gibbon, 1992; Bernstein, 1990; George, 1993; Toh & Floresca-Cawagas, 1992). The critical analysts have so ably decried the misery and suffering which structural adjustment programs which are supervised jointly by the World Bank and the Fund have unleashed on the masses in the South.

Rather than pose the question to lead to a critical assessment of the role of the agencies in development, students are instead soothed to view themselves as "expatriates" and to believe in such notions like "self-sufficiency" with the assistance from the North. In this way the problems of famine and hunger are reduced to the failure of individual choices by governments but with no mention of the structural constraints currently imposed on the South societies by the North governments and their agencies. Frederick Chiluba is to be viewed by the students as a wise African leader who, unlike some of his counterparts in the continent, has decided to be "self-sufficient" in maize. To labor this point further, it is useful to cite the advertisement which appeared in *The Economist*

(October 24-30, 1992) calling for a "Democracy/Governance Adviser" position in Zambia.

> The United States Agency for International Development requires Democracy/Governance Adviser to coordinate and implement a program of initiatives in four areas: (1) constitutional reform and civil education, (2) the development of an independent press, (3) strengthening the Zambian national assembly, (4) policy analysis and management in cabinet office. The DG Advisor will reside in Lusaka, Zambia where he will report to the Director of the USAID mission in Zambia. The DG Advisor will work extensively with relevant ministries and agencies of the Government of the Republic of Zambia and with relevant groups in the private sector. The Advisor will also be expected to work closely with the U. S. Embassy.

The above quote sums up the paradigmatic orientation of the question that was answered by the students. It should be noted that USAID is actively involved in agricultural modernization throughout Africa. As Bromley & Bush (1994) have so eloquently demonstrated, Egypt has also most recently received a new senior officer with a brief relating to governance and democratization as part of a bigger Washington based USAID program which has put conditionalities between good governance and the continuation of US foreign assistance. But what needs to be stressed is that the political conditionality relates to the US opportunism and the strategic rent of the societies concerned rather than any serious concern for grassroots democracy, transparency and empowerment of the masses as officially claimed by the agency. In many ways, the USAID strategies for agricultural modernization are fundamentally similar to those pushed by the World Bank and geared to empower the strong rather than the weak.

As Bromley & Bush (1994:208) have noted, USAID has become one of the most active agencies in rural and agricultural development that follows closely along the lines of structural adjustment programs led by the IMF. They say that in Egypt,

> USAID is one of the most aggressive international agencies promoting radical schemes of privatization and price liberalization. The centerpiece of its strategy in Egypt is to promote a policy reform "emphasizing structural adjustment and sectoral reform measures that support movement towards a free market economy led by the private sector". Because Egyptian agriculture plays a pivotal role in the economy as a whole, USAID argue that reforms in this sector can promote a more general shift towards privatization and free markets. USAID is also a vigorous proponent of the view that Egyptian agriculture must capitalize on comparative advantage. This entails a shift towards the production of a high-value, low nutrition foodstuffs for the European market-strawberries, fine green beans, peppers and tomatoes, as well as grapes, peaches and other citrus fruits.

There is perhaps no need to stress any further that USAID also has played a key role in integrating the Ugandan agricultural system into the CGIAR for similar reasons stated above.

Of crucial significance is the observation that the particular question was directed to test *practical skills* on the extent to which students as future policy makers and rural development workers were adept at providing bad advice against the expressed needs of the masses. The kind of advice available with "student expatriates" as already indicated relates to the modernization of agriculture through the increased use of fertilizers, pesticides and herbicides and the privatization of the economy to favor largely the already privileged groups within the society. Similarly, questions relating to the environmental consequences of agricultural modernization have to be sidelined as foreign investment is permitted to reap the benefits of the "market" economy. Consequently, the students were encouraged to view themselves as outsiders to their societies working with international agencies in development. Furthermore, the students were situated in a position to equate development with being "white" since expatriates in Africa are normally from the North. The possibility for the students to critically analyze the deteriorating social conditions which made it possible for Chiluba to sail to power is not provided. Indeed President Chiluba found empty cupboards on coming to power and was almost immediately hemmed into the Western world economy but perhaps against his will.

The fourth question in the same paper on *Practical Skills*, provides additional evidence that the examination as a whole was not geared towards testing skills and attitudes for grassroots development.

As Coordinator of an agricultural scheme, you have been presented with two different projects proposals from your two Project Managers. Each of the proposals is of equal importance in terms of urgency and improving the schemes operational efficiency. The proposals submitted are shown below:

Capital Outlays Estimated Cash Flows	Project A $10,000	Project B $10,000
Year 1	6,500	6,500
Year 2	5,500	4,500
Year 3	4,500	4,500
Year 4	3,500	4,500
Year 5	-	4,500

Project A lasts for 4 years and B lasts 5 years. Assuming that funds needed to finance these projects can be obtained at a cost of 10% rate of interest, rank these in order of acceptability using (a) net profit value (b) internal rate of return.

While it is essential that students should learn how to work in bureaucracies, critical analysts would wish to have an agricultural science program focus more closely on the rural masses. The role models this time are the managers in position of power and prestige. This being the socialization promoted in the program, it is quite likely that the students would reject any assignments that are geared towards working with the rural poor. Indeed in the interviews already discussed in the previous chapter, most students were skeptical about taking up rural assignment in preference for jobs in the urban sector.

Additionally, the notion of "schemes" in agriculture is associated with the Rural Development strategies of the mid-1970s when the World Bank produced its sector paper with that title (World Bank, 1975). It is explicit in the document that schemes such as the one referred to in the question have nothing to do with mitigating the poverty of the masses. To cite fully:

> At one extreme the primary objective of some of the most successful schemes is not so much to help poor rural farmers or settler as to generate additional output for disposal in the market place. Thus some schemes put emphasis on one or two major cash crops.

Implicit in the quotation is the need to exploit labor to produce the necessary crop "surpluses" for export abroad with little regard for its possible social consequences. Also, the use of dollars rather than Ugandan shillings in the question confirms the foreign orientation of the program which by implication encourages students to look outside their society for development. Furthermore, the complex indigenous agricultural systems characterized by inter cropping on a single piece of land are to be undermined. As I commented regarding agricultural extension services and the training program at Makerere University, quite often projects sponsored by international agencies ignore local practices and are not really geared towards addressing and resolving the problems of poverty and underdevelopment in any fundamental way.

Questions five and six in the *Practical Skills* explicated further the focus of the program to prepare the students for elitists position in the bureaucracy.

Assume that you are an economic adviser to the Minister of Finance and Economic Planning. How would you go about advising *him* on programs to be instituted to improve the standards of living of the rural people in district X.

Imagine that district X is in Zaire. How "benevolent" could the Minister of Finance and Economic Planning be towards the rural poor where organized state theft has enabled a rapid movement of resources to the North to occur (Chomsky, 1993; Gran, 1979; Mazrui, 1986)? In nearly every independent society in Africa, the elite are engaged in a dangerous game of siphoning resources to the North at an alarming rate which threatens the continued survival of the masses. In order to counteract this phenomenon, it would be helpful for an agricultural science curriculum to dismantle the status quo by drawing the attention of their students to the dangers that these activities pose to national development.

Further proof for the modernization paradigm is not hard to find. The agricultural science students are encouraged to view themselves as repositories of indispensable knowledge which the "backward" rural masses desparately need in the process of development. Suppose the question is put the other way round to provide students with a chance to think about being residents in district X whom President Mobutu's "kleptocracy" has reduced to dire poverty? By so doing, students would begin to think critically on the regrettable condition of the masses and could reasonably begin to contemplate taking action to reverse the situation. As a matter of necessity, the teaching itself should have been focused towards the development of a strong commitment towards changing society in positive ways rather than aspiring to join the rag tag and decadent self-consuming bureaucracies which limp throughout the continent.

The six question was no different either as it stressed the development of elitist attitudes and skills. This question run as follows:

> As a farm management specialist, you have been asked to conduct a baseline study in a remote country where government would like to start a development project to boost production of cash crops such as maize, soybean, beans and cassava.
> (a) Outline the steps which you can take in order to prepare for the baseline study.
> (b) What procedures would you use to select the sample.
> (c) Draw out a short instrument which you can use to collect the basic data indicating which kind of data you would regard as very key variables.

Note that the four crops mentioned appear under the national agricultural policy for Uganda in the drive to attain crop diversification for export. Of special importance is the fact that all the crops are to be exported to the North mainly as animal feeds. As Turshen (1989) indicates, the export of such crops from the South greatly diminishes the amount of food available for domestic consumption and leads to poor health especially among the rural farmers who grow the food in the first place. Thus, while the population in the North eat plenty of meat, the rural masses who grow the animal feeds can not meet their basic needs under the policy of export-agriculture. As a result, the anomalous situation in the South where farmers starve while the urbanites have plenty of food would persists (Timberlake, 1986; Sen, 1981).

Regarding the baseline survey, it is important to point out once again that as a research strategy, it does not pay attention to participatory action at the grassroots level and consequently shows a tendency to exclude the voices of the masses. Furthermore, the data often generated which international agencies and local governments depend on for policy making is quite questionable on several grounds (Waring, 1988; Kuttner, 1985). The principal reason is the exclusion of voices from vital groups such as women and landless farmers who often are not interviewed or surveyed. In some cases, as Clements (1993) demonstrates in regard to workers in international agencies, the urban lifestyles of the researchers prevent them from making any active contact with the rural poor to be assisted. As a result, the policies that are often formulated work against the interests of groups which are most in need of assistance in the South.

In a *Research Methods* (June, 8, 1993) paper, students were compelled to answer the following questions:

> Compare validity and reliability with respect to (a) The meaning of each concept, (b) The relative importance of each concept, (c) the extent to which one depends on the other.
>
> Surveys are probably the most widely used , but perhaps also the most frequently abused tools in social research. Against such a background, (a) Under what conditions would you advise the use of the survey research, (b) What do you consider to be the major disadvantages of survey research.
>
> Evaluate the adequacy of each of the following hypotheses. If the hypothesis is inadequate, state the reason for the inadequacy: (a) Teachers deserve better pay than administrators, (b) Students who take government courses will be more capable of more enlightened judgments concerning local political affairs than will those who do not take, (c) Traditional mathematics is better than new Mathematics for slow learners, (d) If students differ in their socioeconomic status, they will differ in their English proficiency scores, (e) Positive verbal reinforcement of students responses by teachers will lessen the probability of future responses.

There is need to make a few general comments from the perspective of the critical paradigm. As with the previous questions discussed above plus those which follow, the final examinations are not geared towards scrutinizing any experiences the students could have gathered in the interaction with farmers. Since there was little of such contact as the students and instructors themselves admitted, the examination could not be expected to pay attention to it. The critical paradigm would have insisted on participatory action research in which researchers and the farmers would collaborate.

In addition, the research reports which were analyzed in the last chapter consisted of over 50 agronomic surveys, hence confirming the presence of a research orientation directed towards the modernization paradigm. As stated in that chapter, the participation of the masses in defining and participating in the entire research process is quite promising in generating quality data for application to the solution of socially-defined problems (Orlando Fals-Borda, 1988, 1990; Chambers, 1983; George, 1994; George, 1976; Freire, 1988; McTaggart, 1991; Dahlberg, 1988). From an ethical point of view, participatory action research is attentive to the expressed needs of the masses concerned and shows an enhanced sensitivity to problems of environmental solidarity and cultural diversity which are often discarded in survey research. Furthermore, as Rathgeber (1988) has shown, university researchers who employ top-to-bottom techniques show a marked tendency towards ignoring vital issues and problems as well as certain social groups like women. Thus, the emphasis given to survey research in the agricultural science program raises questions of serious concern for the needs of grassroots and peoples' social movements which seek to reverse the elite monopoly of knowledge. In one encounter with an extension instructor responsible for teaching research methods, *Rapid Rural Appraisal,* which has been favored by many large mainstream agencies was praised for its attention to the needs of grassroots development. However, the same instructor openly resisted the idea of inviting the rural masses to discuss as well as to implement the agricultural curriculum.

The examination for Food processing Economics done on the 10th June 1993 also shed interesting insights to agricultural studies as the sample of questions below shows:

A food processing industry has been packaging only pineapple slices for the past twenty years. Of late the sales have gone down drastically because of the availability of fresh pineapples in the fresh fruit market throughout the year. All possible strategies to improve sales have been laid down, but there is no improvement at all. Suppose you are one of the managers in this plant, suggest what would be done by giving details of the process.

A beverage processing company has been selling fruit beverages since 1990. The customers who are used to the product continue to buy and really appreciate the overall quality, but the sales have been constant for the past six months. Give all the other characteristics of the stage that these products have reached and state ways of improving the sales at this stage.

The two questions are reminiscent of the views some instructors expressed regarding the problems facing agricultural development in Uganda. As one put it,

> Then a major problem is the marketing of agricultural products. It is a major problem in developing countries. Now for example, I will tell you if

> 20 big dairy farmers developed around Kampala here and each one produced 3,000 liters of milk, they will over-flood the Kampala with milk not because the population is small but because of the purchasing power. Marketing of agricultural produce is very difficult, so you find that farmers sometimes incur very high costs to produce milk but the prices are very low. *Sometimes you can not recover the money you used so if you want to develop into a very big commercial producer here, then you have to think of exporting like some European who has built a big broiler farm for chicken.* It is called UGACHICK. They know that there is very little market in Uganda so they are now exporting their chicks. If you now go to broiler production, very few people will buy your chicken because you can calculate your costs then you add something for your labor. It comes may be to 3,000 shillings but when you put a broiler at 4,000 Uganda shillings nobody will buy it. This is what I call a vicious circle because you will find that commercial development in Uganda or many other developing countries has been killed by peasant farming. It is killed because you find these local chicken coming from Lira and Soroti those good days. Now if you are a commercial poultry producer, how are you going to compete with these people?... How are you going to compete with them? (*My emphasis*)

With reference to the examination questions and the citation above, the customers served by commercial farming are members of the elite rather than the masses. The obstacles that stand on the way to commercial farming are associated with the "traditional" sector of production which must to be dismantled. Clearly, as the views by Dinham & Hines (1983) indicate, by following the modernization principles of agricultural transformation, governments have often invited agribusiness to take over agricultural production from rural farmers.

The marginalization of large sections of the population plus environmental destruction that are the result of commercial farming have been overlooked. Thus, through perceiving rural people as the source of poverty and underdevelopment, the students are encouraged to contemplate ways to exclude them from agricultural activities with little thought given to the possible consequences. Quite commonly, once deprived of the means to subsistence, the marginalized farmers resort to crime, prostitution and related activities which are basically unhealthy for social development in the societies concerned. In order to make students sensitive to the plight of the rural poor, it would be useful to reverse the questions in such a way that the possibility for the students to put themselves in the shoes of women and men who have been displaced from the land by agribusiness is made to occur. In this way, students may begin to develop a commitment and solidarity with the poor so that possible lines of actions geared towards social emancipation could be discussed. As a result, a team of politically conscious cultural workers and scientist is bound to emerge to challenge rather than defend the status quo.

In many references, I have already stressed that technology transfer as the hallmark of the modernization of agriculture has serious limitations (Gatere, 1988; Benor & Harrison, 1877; Rogers, 1983; Fuller & Waldron, 1989). In the examination done on 2nd June, 1993, the following question was sampled from *Methods/Techniques/ Devices* for the students in Agricultural extension option:

> Technology Transfer is one of the major responsibilities of an agricultural extension services. One of the limitations of the traditional communication model is that too little or no reference to the situation in which the receiver is going to use the message. In the past, this has slowed the rate of technology transfer. Describe the model that would improve the limitation. Include in your discussion concepts from convergence model of communication and adoption process.

Again herethere is a recurrent assumption of the superiority of the knowledge held by the extension agent in contrast to the local farmer. The question is clearly focused on the need to emphasis the importance of technology transfer and not the reverse. Hence, the students are encouraged to examine the social environment to detect any possible bottlenecks to successful "adoption" of technology. These defects are identified to be internal to the social formations or cultures of the communities which in the modernization paradigm are said to prevent the adoption of innovations. In fact, the question is framed in the language by Rogers (1983), also widely cited in the literature reviews of the research reports, who is perhaps the most well known proponent of the "diffusion of innovations" worldwide. This view classifies the "adopters" according to their responsiveness to the proposed innovations. At one extreme are "early adopters" rated as progressive and on the other extreme, are the "laggards" who are regarded as the slow adopters. What is ignored is the important issue regarding the way in which resources such as land and water are distributed in society. As a result, landless farmers who work as laborers or borrow land are obviously classified in the official statistics as "laggards" or slow adopters since they lack the necessary resources. In fact, such farmers quite often never appear on national statistics of farmers since they do not own land. Consequently, farmers who are rated as "early adopters" whose "situation" the attention of the extension agents should focus are the big land owners like the "telephone farmers" in Uganda.

One academic as reported earlier said that they have set up a Socioeconomic Laboratory to meet the needs of technology transfer to the neighboring areas as a priority before the rest of Uganda is brought into the process. As previously stated, USAID has been quite actively involved in the renovation of Kabanyolo Farm and in setting up this laboratory. The additional evidence from the examinations leads me to the conclusion that the top-to-bottom paradigm to rural and agricultural development is dominant. In reference to the CGIAR and ICRAF, George (1994), who was cited many times before maintains that technologies in which there is no farmer input right from the beginning are unlikely to be adopted. Like other critical analysts, she identifies the distance or gap between scientists and farmers as the main impediment to the development of relevant and appropriate technologies simply because what farmers think and do never becomes part of the decision making process. This distance is partly due to the way the colonial education system functions in relation to the economy designed to socialize scientists to imitate European scientific and technological achievements without becoming creative workers by themselves. It is also for the same reasons that several students' research reports which consistently referred to the "primitivity" or "ignorance" of the farmers.

In the same examination, the fifth question run as follows:

> One of the most important methods is the "group Method". You are a new extension agent in Masaka District. You have been asked by the District Agricultural Officer to work with the rural youth in five different villages. Describe how you would assist the youth in these five villages to form effective groups. Make sure your plan will ensure that the groups formed will be effective based upon group dynamics concepts.

Again here the superior knowledge of the educated has been assumed. If what instructors repeatedly said about the students' social origins for agricultural work is taken seriously and consideration is also given to the fact that the agricultural program made no direct intervention to respond to the inadequacies outlined in the interviews, one wonders how the students could be expected to "assist" the rural youth to form effective groups. It is naive to expect university students to organize and mobilize the rural youth whom they have little understanding of their cultural ways. A better approach could have been to reverse the question so that the rural youth become the instructors of the university students who themselves need help about farming. What is more, to both the instructors and their students, it would appear once again that the most important thing is to succeed in the examinations. This question ought to be regarded as an additional testimony for the need to succeed in examinations rather than gain some knowledge about becoming farmers.

It is worth recalling too, that in the USAID internal assessment, it is claimed that revolutionary teaching methodologies geared towards sensitizing the students to the needs of rural and agricultural development have been introduced into this Faculty. I have disputed this view together with Cardenal & Miller (1981:17) in noting that, even with mediocre materials, teaching could be revolutionary so long as the methods and the instructional environment are conducive. The modern gadgets such as overhead projectors which are easily at the disposal of USAID do not produce culture but rather reproduce the status quo in which the students are made to feel superior to the masses.

Below are a number of examination questions directed at testing students understanding of teaching materials.

Visual aids are many and a varied but for a better understanding and usage, they are usually grouped into categories and subcategories. Organize all the visual aids you know of into categories and sub-categories. (a) When and why do extension workers/communicators decide to produce or borrow visual aids to use in teaching? (b) What considerations do extension workers take when they want to produce visual aids? (c) What factors do we consider before and during the presentation of visual aids?

Clearly, the decisions regarding visual aids in teaching lie with the instructor or the extension agent as the learners' input is marginalized. It is useful at this point again to recall that the students enrolled in the extension option of the program spoke with much pride about the "right" kind of extension training they had received under the program especially in their last two years of study. It was quite evident that the students did not have any awareness of the demands by the "pedagogy of the oppressed" which should have been central to an extension program geared towards the development of critical awareness and the needs of society. Also, the lecture notes as well as the reading lists that were scrutinized never featured the ideas of Paulo Freire and others who are committed to emanicipatory education and grassroots development.

The point that needs to be stressed again is that the top-to-bottom methods of teaching as implied in the examination questions above are not directed towards the development of critical consciousness which enables the students to question the social order as well as to contemplate possible lines of peaceful action. Instead, the authoritarian colonial teaching methods that have been cemented through the assistance from international agencies are directed towards reproducing the social injustices and inequalities. Thus, the skills and attitudes gained by students potentially encourage them to view themselves not as part of the masses but their superiors. It is not surprising therefore that when queried as to whether rural farmers should be invited to conduct some classes at the University students and their instructors rejected the idea with horror.

The we have another examination paper on *Agricultural Development* which was written on 21st September 1993 in which the following question was sampled:

Agriculture in overall economic development is now widely recognized but the ways and means to speed up agricultural development are still not well understood. Bearing this in mind list and briefly discuss the theories advanced about the transformation of a traditional economy.

The question could mislead the students towards thinking that nobody really understands problems of poverty and underdevelopment. As a result the students could be encouraged to move back and forth between the modernization and the critical paradigm without taking a firm stand on any issue. It would appear that the inconsistency in the responses given by most students on various issues could partly be attributed to this factor. For the rural poor, the issues are quite clear: redistribution of land and other resources as well as the introduction of grassroots-based development. The lecture notes of the students which were examined raised some discussions on development paradigms but fell short in critiquing the modernization paradigm. The work by W. W. Rostow was extensively reviewed in the notes but not critically analyzed. In additon, the reading lists excluded critical analysts like George (1876), Payer (1982 and Feder (1976). With the instructors who had little appreciation for the political economy of hunger in charge of the training program, it was not surprising that such literature was missing.

In the same examination, another question which was couched in the modernization paradigm was sampled as shown below:

> What are the main characteristics of the subsistence agriculture? By means of a diagram explain why farmers are said to be "Inventional" in adopting technologies.

According to Payer (1982), "subsistence agriculture" is the language of the World Bank used in reference to "self-provisioning" communities which are depicted to be living below the "poverty line" such as the Karamojong pastoralists in Northeastern Uganda. For the World Bank, Payer argues, such communities need "help" as well as "advice" which is available from international agencies if they need to become wealthy. With regard to this matter, I drew attention earlier to an interesting case where the Maasai in Kenya as narrated by MacKenzie (1987) frustrated the agencies by refusing to be "developed" through cattle ranching. The question ends with the usual implications of the "ignorance" of the farmers.

Another question in the same examination asked students to put themselves in the shoes of Cooperative Bank Managers in Uganda. It reads as follows:

> Assume you are a Cooperative Bank Branch Manager in your home area. A manager of a primary Cooperative society has applied for financial assistance of 15 millions shillings from your bank. (a) Explain how you would proceed to process his/her application, (b) What appropriate method would you use to make a final decision that would not injure your relations between your customer and your head office.

What in reality have the rural masses benefited from such banks since their appearance in Uganda? According to Young, Sherman & Rose (1981), one of the main hindrances to development in Uganda is related to the massive corruption in which the money belonging to farmers has been embezzled with impunity by high-ranking managers and their clients. Rather than confine students to the mechanistic and non-intellectual tasks of bookkeeping and accounting, it would have been more useful to engage their thinking on the possible dangers to the economy of such corrupt practices. There is little doubt, as Alatas (1977) points out, that corruption "injures" rural and agricultural development although it enriches individual elite in positions of power and privilege.

On Rural Development, the students answered the seventh question which runs as follows:

> Discuss the major strategies adopted in the past to effect rural development in LDCs. Bearing in mind these strategies, what would you recommend for Uganda?

Although such a question leaves room for the students to critique all approaches to rural development and probably even dismiss all of them for Uganda's development, the lecture notes and the *Book Bank* show that students were geared towards the modernization paradigm. Also, the students in the relevant options who were interviewed praised Integrated Rural Development (IRD) strategies which have been widely applied by international aid agencies in national development. It was also evident that where the participation by farmers was referred to, there were constraints on the fullness or militancy of such participation. Again looking at the *Book Bank*, apart from Chambers' *Rural Development: Putting the Last First*, every other book including a locally-produced one by one University Librarian on women belongs to the modernization paradigm. Even for Chambers' book, the *Book Bank* carried only limited copies, suggesting its marginality or the reduced importance attached to its usage.

Attention was also directed at the questions on population and national development. According to proponents of the modernization paradigm, "population explosion" facing the South is regarded as one of the major impediments to national development. The remedy, the proponents argue, is to coerce governments to embark of population control using such methods like contraceptives (Hartmann, 1987). In one course unit examination paper that was made available, the following question was carried:

> By means of a diagram, describe or explain what is meant by Malthusian population trap.

Another question on the same issue also run as follows:

There are conflicting views on whether high population growth is desirable or not in economic development of LDCs. Discuss issues raised in this argument while appraising its validity on African experience.

There is need to cross-check the two questions against the views of the students on the relationship between population growth and environment. As already indicated, there was an overwhelming consensus over the role of high populations growth rate in Uganda in causing massive environmental destruction. In several research reports too, several students justified their projects on the grounds of the need to respond to the increasing population. The proponents of the modernization paradigm are of the view that societies such as Uganda have entered a "Malthusian population trap" in which the available resources are already overstreched in supporting its 17 million people. The cure, as already said, is to cut down drastically on population growth.

Betsy Hartmann (1987, 1994) forcefully challenges that view as a viable strategy to eradicate poverty. She notes that the Carnegie Endowment has recently asserted that population growth threatens "international stability" and that they erroneously advocate for a cure based on family planning. It needs to be added that this is also the view held by most governments in the South which are faced with serious problems of poverty and underdevelopment. But what they refuse to grasp is that in most societies contradictions exists where families with two children or none may be faced with acute starvation while a family with as many as 10 children or more could have the food in excess. It is quite evident from the verbal utterances and the writings of the international agencies and local governments that the "population explosion" argument is used to distract the attention of the poor away from the glaring social inequalities and injustices which are the product of bad governance and social organization. The poverty which the rural masses face in various societies needs to be properly situated in the marginalization caused by the aid agencies themselves rather than through the "population explosion" scare.

Finally, in the final year examination for agricultural administration, the following question was sampled:

1. In managing people, the style of leadership varies with the situation. identify and discuss the relationship of the above view and the specification of Theory X and Y.
2. (a) What is delegation in administration? (b) How do you delegate effectively and who do you decide to delegate? (c) What are the psychological barriers to delegation and how do you overcome these barriers in personnel administration?

Max Weber wrote that in Western capitalist society, bureaucracies emerge as the new forms of domination in which the regulation of subjectvities is organized through a systematic application of rules (Sayer, 1991). Central to the capitalist mode of production is the separation between the enterprise based on "rational calculation" and the household. Hence, the bureaucracy is impersonal and neutral. As Weber observed, the "sober bourgeoisie capitalism" is peculiar to the North. This alone raises questions regarding the application of similar principles to the South.

Finally, one should also note the authoritarianism implied in the question through the use of "in managing people". Being educated in an authoritarian colonial institution, it is quite easy to see how students could willingly accept to be socialized to docility and the unquestioning attitude to authority figures. Aside from that, I have stressed in many pages of this work that rampant corruption organized through the bureaucracies is in part responsible for the development gap in the South societies. Thus, apart from the need to sensitize the students towards the issues and problems of rural and agricultural development, the curriculum needs to stress approaches in social organization which are tailored towards the dissolution of super ordinate-subordinate relationships. As stated, the sampled questions are geared towards the modernization paradigm with all the attendant problems variously discussed in the document.

5. 9 Interview Data from Policy Makers and Administrators

As with the two groups of students and instructors, the interviews were directed to obtain information regarding views on the competing paradigms which influence the approaches to rural and agricultural development. Four respondents connected with the Ministry of Agriculture were available for the interviews and comprised of three senior training and information officers (all male) and one woman politician and administrator who has been intimately connected with the Ministry of Agriculture during the full duration of NRM government. From the interviews, the modernization paradigm was overwhelmingly preferred as basis for rural development vis-s-vis the critical paradigm. Excerpts extracted from the interviews are presented and analyzed below.

In response to a query regarding widespread poverty in South societies such as Uganda, the views of the over-all in charge of training and information reflected a preference for the modernization paradigm of development as follows:

> One of the problems is due to political instability. The other problem is that although farmers have been making an effort to grow crops, the market for these crops has declined so much. Cotton which used to be

> grown in excess has lost market. Then I think 30% of the crops we grow here are destroyed by insects, birds and rodents. Then I think the other problem is lack of motivation among extension staff to deliver the new technology to the farmers so that they can improve their farming methods. I think this has been a major drawback. Then I think in the rural areas there has been no innovation due to lack of education. Where people are educated, they become enlightened and receptive to new ideas or you can approach them with pamphlets. Uganda is one of the countries which is backward in terms of literacy. Then of course the other problem is lack of transport which government is trying to address.

The issue of cotton comes up again. No curiosity over the resistance shown by farmers to the cultivation of cotton was demonstrated but instead the official was content to see the problem in terms of declining world prices. Evidently, as Vincent's (1982) important critique has already shown, the introduction of cotton in Eastern Uganda was destructive to the soils and competed unfavorably for the time given to food crops. Likewise, as pointed out earlier, technology transfer is viewed in terms of the need for the officials to maintain superiority and legitimate their actions over the rural people who are channeled by the modernization paradigm to grow food for export. As earlier stated, the extension agents do not really have any superior knowledge which farmers need or could help them to cope with their miserable social conditions (Timberlake, 1985). As George (1976) and George (1994) have maintained, agricultural technocrats end up entrenching the same forces which are responsible for the pauperization of the masses in rural settings.

Furthermore, in the view of agricultural trainers in Uganda, extension staff have precious advice to offer to farmers whose refusal to "adopt" the new technology would then be equated with their "primitivity" and lack of education. Yet, it is unlikely that the same officials as farmers would be happy with any development schemes and strategies which ignored their initial involvement. Similarly, the analysis offered by the trainers to explain poverty on the basis of the failure of the cassava crop was simplistic and off the mark. One official summarized as follows:

> And when you look at the North and the East, most of these people depended on cassava and sweet potatoes, cowpeas and beans but of recent, cassava has been wiped out. The mosaic has wiped out cassava and to get new varieties is a problem for farmers themselves. There was a pilot project of cassava distribution in Teso but because of transport problems it failed to work well. And because of lack of extension workers, they did not understand the motive behind cassava project so they went back to the old ways, so you find that because of lack of education the farmer is much more affected.

Again here the extension agents are portrayed to have the "good news" while farmers live in abject poverty due their "ignorance and stupidity" and its why "they went back to their old ways". Missing is any comprehensive understanding of why people in Eastern Uganda came to depend so much on cassava in the first place. Once cotton had been imposed, because of the labor time which it drains from the cultivation of food crops inevitably cassava as a famine crop with very little nutritional value gained currency. To be specific, as Vincent (1982:187) clearly demonstrates, in 1920, there were 0.1 thousand acres of cassava in Kumi and Soroti Districts but that figure rose to 21.0 thousand acres by the year 1927 precisely for reasons stated above. For her, cassava needs less labor time and does quite well with minimal attention.

It would be useful to note again that the famine and the epidemics of 1919 which devastated these areas were a direct result of the introduction of cotton and the plow and also marked the beginning of the decline in population growth in the affected areas. I have repeatedly argued that the low fertility rate reflected in the population growth figures for these areas cannot adequately be interpreted without reference to the political economy of hunger in Uganda. As modernization theorists, it is not surprising that they failed to conduct their analysis of poverty within the political economy of food. They omitted the fact that once cassava had been grown too many times on the same pieces of land, it was bound ultimately to contract viruses as happened in parts of Uganda and that the solutions could not be solely technical but also social.

With hunger defined to be a consequence of low productivity, not poverty the approach to its solution is naturally laid on crop engineering. Experience in Eastern Uganda so far disapproves the appropriateness of that approach as the new variety seeds themselves have also been affected by the "mosaic" or virus. As stated earlier, the political economy of hunger is a necessary solution to the hunger problem which saves valuable time, energies and scarce resources currently devoted to the development of "resistant" crop varieties. Obviously, as experience has so far shown, plant breeders are reluctant to admit the importance of political economic conditions in affecting crop yields and overall productivity. When farmers refuse "resistant" cassava varieties and instead are seen actively searching for "their" varieties, this indicates not "ignorance" but their superior understanding of farming and ecology.

The loss of valuable food through the destruction by rodents, insects and birds often incurred by farmers is raised but the official was silent about financial loss to farmers which has repeatedly occurred as a result of delayed and in some instances the non-payment for the produce by state officials. Numerous cases exist throughout Africa in which the state marketing boards have coercively channeled farmers to grow cash crops for export for which payments are hardly made. This should have been an important critique for the officials to raise as an active deterrent to cultivation of food and cash crops. As senior officials in the Ministry of Agriculture, it is quite unlikely that these issue and problems are unknown but perhaps the need to hide the negative aspects of the bureaucracy were compelling enough to abstain from criticism.

In response to a question seeking her views on increasing poverty in societies such as Uganda, the only politician interviewed declined to acknowledge the widespread misery faced by rural people in Uganda while making carefully guarded statements on the matter.

> First of all when you talk about the increase in poverty, increase is relative, from where to where. Number 2, if you are talking about poverty in South countries, it will also depend on which country, where it was sometime back and where it is now. Where were the peasants sometime back and where are the peasants now. *Because one thing people normally do not look into is what is on the ground...* So for me when I am looking at poverty etcetera, first of all, I want to look at where we were, where are we and where are we going. Some people may be only too happy to blame all on IMF and World Bank but I normally restrict myself from making sweeping statements, The only thing I can say is that in some cases policies have been too harsh, they have made the poor poorer. (*My emphasis*)

The impression given was that any criticism should be suppressed as social conditions in Uganda are said to be "improving" for all groups. Toh & Floresca-Cawagas (1992), in their critique of the World Bank as a development educator in Indonesia note perceptively that authorities are normally weary of any criticism especially when they feel that the best possible within the circumstances is being done. However, they add that in development education the status quo cannot simply be spared from very close scrutiny even in situations where there are signs of "progress". It is quite evident that many people and politicians rate the NRM government more favorably in comparison with the previous Kampala regimes but this is no ground for professionals and highly educated citizens to silence criticism on deep-seated structural inequalities bequeathed to us by years of colonialism.

In Uganda, as Mamdani (1989) notes, it is quite difficult to estimate with a fair degree of accuracy the impact of structural adjustment programs on various social groups. But there are strong grounds for suspecting that the material conditions of the rural poor, most particularly for the women could have worsened following the erosion of state power to provide social services as demanded by the IMF. Although ideally NRM would have wanted to do the best for the masses, the priority concerns of the North in recovering debt has circumscribed those intentions by compelling the political regime to toe closely along the IMF guidelines. It is at the same time interesting to note that Uganda today is congratulated by IMF for its successful "adjustment" to the Western world economy.

Whatever efforts within the Fund that could be said to dismantle the status quo have come to nothing. As George (1993) acidly notes,

> the pressures exerted by dozens of non-governmental organizations in both the North and South have so far failed to alter the basic debt-management policies. Although the Fund and the Bank now claim they seek to "mitigate the social costs of Adjustment", official response to the crisis advances at a calculated snail's pace, inching from one feeble and ineffective "Plan" to the next while leaving the status quo essentially untouched. (27)

As the status quo is maintained globally, millions of women including children waste away even in the "civilized" America where thousands of homeless parents desperately struggle to raise children on the streets (Kozol, 1988). Several other accounts indicate the extent to which the world economy that has remained essentially unaltered has continued to cause mass death for millions across the globe (Waring, 1988; Timberlake, 1985). For both critics the world economy has particularly marginalized and oppressed women in many subtle ways like in the exclusion of the vital household tasks from official statistics used in policy making. Thus, the policies which are often formulated and implemented globally are wrong-headed and ignore the active role of women in development. The poverty that accompanies such policies kills millions though indirectly. There is no way NRM could have wished to eradicate such deep-seated structural inequalities within 8 years even where strong will to do so existed within the state.

Throughout the South and most particularly in Africa, the state has become "irrelevant" as a mobiliser of the masses for national development but has instead become a tool in the hands of a largely decadent, corrupt, unproductive and dependent dominant class (Kothari, 1987; Ihonvbere, 1994). The net outcome for the leaderless masses has been to turn to primordial loyalties such as ethnicity but which have also been opportunistically manipulated by the dominant classes seeking to entrench their power and maintain the status quo. Societies such as Uganda, Rwanda, Sudan, Mozambique and Kenya have been excellent examples of cases where the masses have been reduced to destitution and misery as elite cliques perpetually elbow and jostle each other for power.

This role of the state in orchestrating poverty and underdevelopment has been strengthened by the structural adjustment programs whose sole concern is to get South societies to repay the debts. By placing emphasis on the timely repayment of its loans, the IMF has compelled the various states to extract and export almost anything of value to the North with the regretable result that rain forests and minerals have found their to the North. In the view of the politician cited above, it would appear that the systematic extermination of the masses through the harsh application of structural adjustment polices should be treated with reservation. In development education such a position can not be accepted as the students need to be assisted to scrutinize all aspects of governance. Agricultural scientists in particular need to be helped to critically examine how the masses have become victims of the collaboration between the inept and corrupt elite who are habitually hobnobbing with foreign forces against national interests.

Thus, the state theft organized by President Mobutu's "kleptocracy" in Zaire, for example, ought not escape the attention of young people who need to inherit the responsibility for creating a humane and just world (Mazrui, 1986; Chomsky, 1993; Gran, 1979). Similarly, it would be useful for agricultural scientists to be sensitive to the role of the Belgian and French interests in the recent massacres in Rwanda in which more than a half million rural farmers are estimated to have perished in the hands of the state. Put differently, there is need to move away from the racist colonial curriculum in societies like Uganda in order to create a cadre of agricultural scientists who are not politically passive but are fully committed as cultural workers and scientists to widen the options available to the masses to improve their living conditions.

When prodded for her views on the possible impact of the activities of the Bretton Woods institutions on the training and education of agricultural technocrats for national development in South societies like Uganda, the following response was provided:

> First of all there is no way you can lump them together because they have completely different policies. I doubt whether anybody has been trained under IMF. Secondly, when it comes to World Bank, the World Bank will normally do what you want... There policies are very very different.

The response promotes a misunderstanding of the Bretton Woods institutions. To quote Bennis & Moushabeck (1993:118),

> The IMF and World Bank were created simultaneously, at an international conference in Bretton Woods, New Hampshire. Economists from the United Kingdom and the U. S. were the basic architects of the two institutions, with the views of the American, Harry Dexter White (who later became a celebrated victim of McCarthyism), largely winning out over the views of the British economist John Maynard Keynes.

Granted that the IMF and the World Bank have different mandates to accomplish, what is of critical importance is that their creation was motivated by similar ideological aspirations of subordinating the rest of the world to the Western world economy. In this subordination, the South was assigned to the lowest rungs of the economic hierarchy to produce cheap primary commodities. This objective has ruthlessly been accomplished and has produced a racially divided world in which Africa is singled out for extermination (Mazrui, 1994; Tandon, 1994). Thus, for a senior government official to ignore the historical roots of the current global apartheid is highly regrettably at a time when the continent is being isolated and marginalized.

Continuing with Bennis & Moushabeck (page 25) on the intricate machinations through which global power is wielded by international financial institutions, they point out that

> Another systematic complaint about Bretton Woods institutions, and about IMF in particular, goes to its link between money and power. In its mildest form, the criticism is simply that IMF voting strength is directly proportional to the value of a country's production and trade, a practice which marginalizes the voice of the poorer nations. A more profound variant of this criticism goes on to challenge the equity of utilizing Western currency arrangements as the foundation for global monetary system. This is seen as further handicapping countries only through a payments surplus with the hard currency countries, a difficult achievement which is replete with its own gross inequalities.

The above quote should be enough to persuade anyone that the Bretton Woods institutions, regardless of the mandates assigned to each of them, are not designed to work in the interest of the poorer societies including the education and training of human power under the aegis of the so-called institution-building.

Another way of looking at the response by the Uganda Government official is simply that the interests of the government and the international financial institutions actually coincide. What needs to be pointed out again, however, is that this synchrony of interests is not only detrimental to the needs of the masses especially through the imposition of debt repayment and the accompanying massive environmental destruction but it is also responsible solely for the absence of social peace and harmony which today define the lifestyles of millions in the South. Thus, the claim that the World Bank "will normally do what you want" is not only wrong-headed but also amounts to increased immiseration of the productive masses which, from the critical perspective, must be challenged at any cost.

Asked what she felt about the relevance of the agricultural science program at Makerere University for national and rural development in particular, the following response was obtained:

> Makerere is quite a dynamic institution. When I had just come here, it was quite different and there were a lot of things happening, for example. I remember till 1987, the degree used to take 3 years but it has been moved to 4 years because the majority of employers were not happy with the people they were turning out. Secondly, we have just heard that they have raised the pass mark because once again, some of the people who were coming out were not the best so in order to improve quality, we have not only extended the training time but even the pass mark has been raised. There was also a revision of the syllabus for the veterinary department where there was little money for extension as a compulsory subject.

It has been argued repeatedly that any education that is driven by or targeted at passing examinations is virtually useless for enabling students to acquire any useful knowledge necessary for national development (Dore, 1976; Hudson, 1992; Oxenham, 1984). That 27 students obtained Second Class Degree (Upper Division) does not say anything about the relevance of that education to the needs of society. Dismissed or ignored in the exposition are the crucial issues regarding the suitability of the content taught and the appropriateness of the instructional methodologies and strategies employed in the educational processes towards equipping students with theoretical and practical skills for rural and national development. From earlier discussions, it is quite evident that Makerere University is one of those "foreign bodies" in Africa that contaminate society through their lack of effective links with indigenous communities.

The issue relating to employers who are unhappy with the training at Makerere University is equally problematic. In the first place, the Ugandan economy has not undergone any structural changes as the policy makers and administrators appeared to indicate. It is clear that it is still the same colonial economy dominated by the political and economic interests of foreigners rather than tailored to respond to domestic needs of the population. Secondly, it is quite doubtful whether employers (mainly government bureaucrats), also educated at Makerere University would have the audacity to challenge in any fundamental way an institution which gave them so much "success" upon the completion of their studies. Looking closely at the report by the Visitation Committee report (1987) again, there is really nothing new said except the usual administrative issues and lamentations about shortage of funds to make the practicum possible. Crucial issues pertaining to the politics of knowledge which could have constituted the arena for radical discourse were either not recognized or simply avoided. There is also no need to repeat that the extension course for Veterinary Medicine could not be any radically different from any other extension courses in the University since the entire institution is closely structured on an alien agenda.

Missing or ignored are the voices of the rural masses regarding the nature of training provided at Makerere University. In a top-to-bottom research approach, the marginalized are not to be talked to but simply to be photographed as Spitz (1978) tell us. The value of the Visitation Committee report as well as the "Kajubi Report" is drastically reduced due to their failure to engage grassroots organizations and peoples' social movements in all debates on educational change in Uganda. It appears to have escaped the mind of the government official cited above that rural people as well as slum dwellers could have extremely useful things to say about the agricultural science program at Makerere University. Hence, to confine the assessment of the programs to the needs of government officials is to deny the masses the opportunity to demand accountability from the dominant elite.

She was not alone in praising the dynamism of universities such as Makerere. Radical African intellectuals too, tumble into the same trap by viewing certain sectors of the transplanted African universities as progressive as Ntalaja-Nzongola (1987:125) does:

> On the whole the universities have proved incapable of initiating development projects that would improve living conditions of ordinary people. Only the teaching hospitals of the various medical schools and some community outreach services of disciplines like agriculture can be said to be serving the needs of ordinary people. It is such fields, as well as, in pharmacology, that some effort is being made to learn from people's largely untapped but rich reservoirs of knowledge of new ideas, methods and products for purposes of improving their health and well-being.

The point to stress is that Ntalaja-Nzongola does not appear to have done research on any African University especially from the perspective of development paradigms. It is no surprise that the top-to-bottom approaches to teaching and learning which are dominant in most universities are easily mistaken for the dynamism of such institutions.

In response to the question regarding the necessary changes that could be desirable to improve the curriculum at Makerere University, the trainers jointly argued that the theoretical studies are quite well done with the exception of the practicum. As one of the them summed it " There are excellent in theory. The practicum has been the problem all along". All hoped that with the extension of the degree by an additional year, the practicum would improve drastically. Judging from the evidence so far collected and reported, the practicum has not been accomplished, instead more theoretical work has been taught. Also, it should be noted that the practicum referred to by the trainers is what already exists in the agricultural science program couched within a modernization framework. They did not call for anything new.

Although the trainers were full of praise for the theoretical courses in the program, some pertinent questions need to be raised. To begin with, according to the Faculty Handbook, as a specialized science curriculum, the students are denied the opportunity to gain a holistic understanding of social reality as stressed earlier. As Siegel (1987:11) comments on such curricula in America:

> One final point concerning the loss of generalists. I think part of the reason for this creation of cradle-to-grave academics-people who never experience the world outside academia. That loss of experience creates a dualism in which the university life of the mind, so to speak, is cut off from the body of American life.

Implicit in the statement is the point that the agricultural science curriculum, which produces technicians for the agricultural economy but who are hardly politically sensitive (what Gramsci calls the "functionaries of the superstructure") and are not properly prepared to fully undertake the project for social transformation as demanded by the present times. The trainers needed to have acknowledged this important point.

Thus, policy makers remained indifferent to the fact that agricultural engineers, for example, graduate out of Makerere University without any systematic exposure to the life of the farmers in rural and urban areas nor do they become familiar with the environmental consequences of the same technologies they are supposed to develop since such courses do not exist for them. Such courses like Rural Development (RE 403) or Social Change (RE 407) which could hope to expose students to agrarian issues and problems are restricted to the two options of Agricultural Economics and Extension. Unfortunately, these courses are also of little value for grassroots development as they are developed within the modernization paradigm. Similarly, Community Forestry (FO 314) taken in the third year from which one could hope to gain some understanding of farming and society is excluded from everybody else except students in the Forest option. The outcome of this curriculum design is likely to be agricultural technicians who act basically as servants for the international agencies. It is deplorable that top government officials have been indifferent to the needs of the masses through their neglect to reorient the agricultural curriculum to serve them.

The point to underline is that such a curriculum design left with no critique by top policy makers and trainers is geared towards "developing" society on the basis of beliefs and ideas rooted in Western consciousness. Science and technology imported to societies such as Uganda has no organic linkage with the traditions of society and consequently can only have only negative influences on the communities. Thus, the scientists produced under this modernization program show a congenital incapacity to initiate and sustain the advance of science as they never acquired the scientific spirit. One notices in this respect the disdain held by instructors and trainers for fields like philosophy of science or political economy from which some understanding of social change could be obtained.

Finally, it was quite evident that the trainers had been slow in appreciating the role of women in development. As expressed by one of them,

> This is a new thing. We have not been having it but we have a course in Home Economics in Bukalas College for women but which has also been extended to men.

Note the sexist implication of the statement. As with the instructors, Home Economics is viewed as the domain for women to which men may be invited to participate. The lack of interest over women studies cuts across all groups interviewed without any one demonstrating a coherent understanding of its role in rural and agricultural development. Yet, from numerous references already made, the participation of women in production in general has received a worldwide endorsement which any agricultural training program needs to underline.

In conclusion, it needs to be pointed out that the four interviewees were all graduates of the Faculty of Agriculture at Makerere University. This point in part helps to clarify why there were guarded statements on the questions raised and most particularly those directed at a close scrutiny of the University. It is also useful to note that the trainers who emphasized the importance of the collaboration in research with the instructors could not have been willing to mount scathing criticisms on their counterparts even though the weaknesses in the program of study were glaring. Thus, as Dumont (1966:91) wrote almost 30 years ago:

> I had great difficulty in making African Ministers admit the irrelevance and faults of the French Education system, because many of them were former teachers. How can they question in depth a method of teaching that enabled them to do so well? The Senegalese Minister of Education has accumulated so many doctorates. When the report of CINAM Plan proposed that rural teaching be overhauled, he rejected the idea with horror.

And besides the need to defend the institution which bestowed such great honor and glory, it is quite unlikely too, that any bureaucrat or politician would be willing to challenge the international agencies in rural and agricultural development which could have been principal sources of hefty per diems, travel and other benefits. Such a move would not only be inappropriate in their circumstances but could potentially jeopardize a lucrative career.

CHAPTER SIX

INTERNATIONAL AND NATIONAL INFLUENCES

6. 1 Introduction

As critical analysts of the role of educational systems in any society have pointed out (Carnoy, 1991; Berman, 1979; Giroux, 1985; Altbach, 1979) that role cannot be understood without taking into account national and even international influences or forces. The wider social, economic and cultural and political structures and dynamics of development impact upon and are in turn affected by what and how educational institutions fulfill their goals and responsibilities. Such interaction between society and education was clearly reflected in the evolution of Ugandan schooling system under colonialism. Agricultural education in the school curriculum owes its origins to the early attempts by missionaries before independence to provide what they regarded as relevant educational experiences to Africans as part of what was called technical or vocational education (Hansen, 1984). In order to fully capture the problems and issues faced by agricultural education or any educational sector in societies such as Uganda, there is need to lay emphasis on this role played by missionaries in the creation of the "modernisers" to take charge of the "civilizing mission" which had prompted the establishment of the systems in the first place (Brantlinger, 1985; Said, 1992). Thus, the main concern of the missionary agenda was the creation of a small cadre of Africans equipped with Western Christian morals as distinct from the indigenous societies whose cultures were the target of missionary attack. Accordingly, the missionaries looked at the provision of vocational or technical education as being secondary to the "noble' aim of creating attitudes and values as stipulated in the teachings.

Although the missionaries held monopoly of the education system in Uganda from the very beginning, this monopoly was broken for two main reasons. First, their efforts at educational provision were severely constrained by lack of funds as the demand increased tremendously with more areas brought under British occupation. Secondly, the Colonial Office which had watched, and in fact, supported the missionary monopoly over education resurrected their old fears that there were inherent dangers to government and society in allowing this monopoly to continue.

> Secondly, these economic calculations led to qualitative assessment of the missions' educational contribution. Taking the missions' limited resources into account, the government's assessment was somewhat negative. Boys

> coming out of the schools lacked training for any real professional work, and the need for closer government control was strongly felt. What the Deputy Commissioner had hinted as early as 1905, when he questioned the wisdom of leaving the entire educational work in missionary hands, was now clearly expressed by a later generation of colonial officials as they began to ask whether the present educational system furthered the interests of the state, and whether it was really geared to the needs of government and society. Young people were leaving school with considerable disrespect for manual labor, and they therefore formed an element of discontent and unrest in the tribe. (Hansen, 1984:231)

Thus, the mission was weakened and the monopoly in education was broken and replaced by a division of labor in which the government ran the higher levels of educational system. It was in this context that Makerere College to train medical, clerical, vocational/technical personnel for the needs of the emergent economy was created.

Although the monopoly was broken in the post-war period, the influence of the missions on the educational system remained considerable and persisted to the present times since the institutions at elementary and high school level continued to be dominated by them This influence was direct and indirect through the routines and rituals of the school system itself especially the significance attached to the notion of Christian civilization. In fact, one could argue that the government had broken this monopoly only in theory as the missionaries still had the opportunity for "catching them while still young" through the control of the lower levels of schooling. Another important point to note in this respect is that although government aimed at establishing an education system out which men and women with the "right" attitudes and skills for social development were to emerge, this was contradicted by the fact that the main idea for boarding schools was to protect the youth people from their culture which in the first place was based on farming. It is no surprise therefore that the graduates from the schools, whether started by missionaries or government, were as a result of their socialization opposed to indigenous cultural ways as they viewed themselves to be different. Thus, the low status accorded to farming either as profession or an occupation needs to be traced to the colonial origins of the educational system which was constructed primarily to oppose the indigenous society.

Thus, agricultural education in the school curriculum owes its origins to the early attempts by missionaries before independence to provide what they felt were relevant educational experiences to Africans as part of what was called vocational education. Throughout the colonial period it was taught in elementary schools as a terminal subject meant to prepare its participants in the agricultural occupations in rural areas. At the same time missionaries reserved the liberal education route to prepare future leaders to assist in the emerging colonial economy. From the beginning agriculture as a school subject never occupied a prestigious status in the minds of students, parents and administrators alike. Since independence, there is little evidence that this low status was uplifted or even that there were any serious attempts to do so.

Although the Castle Commission (1962) is noted for its emphasis on technical education including agriculture, in reality little was meant and done to actualize that goal. The commission did not introduce any meaningful radical changes to tailor the entire curriculum to the needs of the communities whose sense of livelihood and culture was deeply embedded in farming. Similarly, although there are occasional remarks in the "Kajubi Report" now translated into the Uganda Government White Paper to make education at all levels relevant for community emancipation, a close scrutiny of this recommendation reveals serious flaws as parents and their children are still encouraged to look disparagingly at technical or vocational education in preference for the academic studies. Part of the reason is related to the colonial legacy in which the remuneration accorded to those who follow the academic track in governmental bureaucracy is greater than vocational education (Bacchus, 1988; Foster, 1977; Yulat, 1988).

Following the massive expansion of educational system at independence brought about by the uncritical faith in its role to promote national development and to tackle social inequality, attention to vocational education such as agriculture and technical trades was directed to remedy an army of high school graduates who no longer could be absorbed by the modern sector. Nevertheless, vocationalizing efforts were largely undermined by social and economic disincentives. Instead, dominant attention was paid to physics, history, biology, chemistry, mathematics, English and many other academic subjects which favored access to higher levels of education. Indeed, until quite recently agriculture was disregarded as a viable subject in gaining admission to university even to study agriculture. The Faculty handbook (1989) still shows a heavy leaning to physics, chemistry and biology at advanced level stage as the typical route to gain admission to agricultural education at the university (see appendix B).

Furthermore, even where offered the instructional strategies have remained geared to success at the final year examinations rather than providing attitudes, skills and knowledge to perform as farmers. As Dore (1976) notes, an education of this kind could not be regarded as useful for development. Sadly, the increasing competition to attain admission to any program or course of study at Makerere has dictated further the drive by many students and parents to gain grade points necessary for such an admission. This is a generalizable phenomenon which could not be confined to agricultural education alone at high school and the university. This is the background against which to view the programs of study at Makerere University and most especially that in the Faculty of Agriculture and Forestry.

6. 2 Agricultural Education and Economic Development in a Dependent Economy

Although at the initial stages during the introduction of vocational education agriculture was viewed with a degree of disdain even by the authorities, the successive years following independence focused more direct attention on agricultural education to provide the economy with highly trained scientists. The impact of this apparent shift of emphasis led to two main outcomes. Firstly, enrollments at Makerere University began to steadily rise as person power needs were constantly being forecast. With a passage of time the burgeoning enrollment were dictated by the social pressures for higher education for its sake. The second outcome was externally catalyzed in that foreign agencies began to take keen interest in creating an integrated global research group in agricultural sciences and related disciplines and in turn stifling the development of agricultural curriculum as an indigenous activity. As occurred in the case of many other South societies, if independent governments had hoped to create research establishments based on the felt needs of their indigenous societies, this was bound to suffer as the emergent nations continued to be integrated into the modern world economy. Agricultural systems in Uganda and other South nations today operate with massive input from international agencies and their governments.

As stated said in chapter two, the role of the IMF and World Bank in articulating structural adjustment programs for which all societies are mandated to follow has been felt directly by the agricultural system in Uganda. As Bromley & Bush (1994) point out, the World and IMF together with USAID and other North agencies work towards a common goal of implementing the policies and programs that are designed to extract as much wealth as possible from the South whose economies have been liberalized to permit free flow of foreign capital. The United States Agency for International Development has particularly been active in assisting local governments like Uganda to establish agricultural systems based on the export-growth strategy not only by providing the necessary infrastructure but also by mounting programs of study at home and in the US itself in order to generate a pool of individuals whose world views and lifestyles are similar and conducive to American interests and demands.

In Uganda, although international agencies had been involved in the agricultural system before independence, the previous decade offers especially pertinent insights from the perspective of this study. The desire which could have existed for societies like

Uganda to truly develop agricultural systems based on their histories and needs could not possibly be sustained in the face of mounting external influences. In 1971, the Consultative Group for International Agricultural Research (CGIAR) was assembled under the leadership of the World Bank to which prominent organizations like the Rockefeller, USAID. and Ford belonged plus a number of powerful governments particularly in the North. In recent years, the International Service for National Agricultural Research (ISNAR) also emerged with the major task to integrate societies in the South into its paradigm of rural modernization. In talking about world food problems today, one must constantly make reference to these organizations and others like them which have grown up to control the world food regimes at a global level as well as to dominate knowledge production in agricultural programs.

In the last two decades, national development and rural development in particular has required the joint participation of local governments and international agencies (Heyer, 1981; Williams, 1981). Looking at most documents produced under the auspices of organizations and governments, three objectives repeatedly occur in agricultural and rural development: (1) to conduct training with a view to produce personnel to take charge of the necessary policy making for the economy; (2) to educate and train agricultural extensionists to link farmers with modern technologies and (3) to develop expertise in the field of special plant breeding and development as a necessary step towards the accomplishment of the mutual objective of increasing agricultural productivity. Putting it differently, the issues of famine and hunger which persistently trouble societies in the South are accordingly defined as problems of production, not poverty (Borlaug, 1980; Burki & Goering, 1977; FAO, 1983; Walters, 1982; Schultz, 1964; Eberstadt, 1981; Yudelman, 1964). Given this orientation to development, it is quite evident that agricultural development is driven by the modernization paradigm geared towards increased productivity with the help of fertilizers, pesticides and high-yielding variety (HYV) seeds and credit. Consequently, agricultural curriculum development is based on the same logic of equipping students with knowledge that is geared towards effective performance in the drive to increase crop and animal productivity. For the case of Makerere University, the analysis presented in this chapter establishes that the faculty of Agriculture & Forestry has come increasingly under the supervision of donor agencies like USAID and not surprisingly geared towards the modernization paradigm of rural and agricultural development.

6. 3 External Influences in Shaping Makerere's Program

In the mid-1980s, Milton Obote II government jointly with USAID initiated a major program in national agricultural system to embark on "human resource development" (HRD) to take charge of conducting research as well as restocking various institutions with the labor which had fled to neighboring areas like Kenya, Southern Africa as well as the North principally to search for "greener pastures". The poor political atmosphere also led to this mass flight. Following his overthrow through armed insurgency in 1986, the NRM continued with the Manpower for Agricultural Development (MFAD) program of the previous years which was funded by USAID in Kampala. Apart from the renovation of various agricultural institutions, the MFAD program sent Ugandans to USA land-grant colleges mainly to pursue PhD degrees. The other training aspect of the program was done at Makerere University mainly for MSc degrees but which was supported by USAID "experts" sent from the United States. Numerous short terms courses and seminars were also conducted under the auspices of this program both in Uganda as well as in the United Sates for selected field officers. As stated in the previous chapters, part of the contribution which USAID made was to set up a national agricultural research system as an umbrella for dispersed research institutes.

An internal evaluation report of USAID activities arrived in the Faculty of Agriculture in October last year and was available for this study. The report reveals that out of 38 Uganda trained in USA for postgraduate degrees, over 25 percent were in Crop Science with principal focus on plant breeding and pathology, agronomy and entomology while crops covered maize, soybean and horticultural crops. Over 50 percent were in socioeconomics broadly to cover Agricultural Extension and Economics, or more simply, what are regarded as the supporting disciplines for the mainstream scientific research. About 15 percent were in Soil Science viewed also as a support area to agricultural research. Only two people were sent abroad to study Agricultural Engineering. At the time of this research hardly any students were still on their programs of study as nearly all had completed and returned to the Faculty of Agriculture to teach and resume their duties within the agricultural department. A close look at the distribution agrees with my earlier observation regarding the main activities which organizations and governments committed to the principles of the CGIAR see to be important in agricultural development and education.

In the duration of the program many changes were made within the Faculty itself especially through the influence of USAID "experts" in launching new courses and departments. The departments of Food Science and Technology, Agricultural Engineering, Agricultural Education and Extension and the post-graduate programs were either created or resuscitated under USAID as their internal assessment clearly says. According to the Faculty Handbook, the eight departments are collapsed into four sections; namely, Agriculture comprising of Crop Science, Agricultural Extension, Agricultural Economics and Animal Science, Agricultural Engineering which is run jointly with the Faculty of Technology, Food Science and Forestry. From the interviews as well as from the Handbook, it is clear that the programs of study were designed according to expert model dictated by the need to provide specialized skills in narrow areas such as Crop Science or Agricultural Economics. However, the interviews and the Handbook again reveal that there is single course for all students in the Faculty of Agriculture in the first and second year of study when general subjects are studied (see appendix E 1-4). Looking at the program structure for the first year, for example, while Technical Drawing (AE 101) is taken by students in Agriculture, Food Science and Forestry, the students in the Agricultural Engineering are exempted presumably on the grounds that the course would be too elementary. Similarly, the students in Agricultural Engineering are also exempted from Mathematics (AE 102), Climatology (AE 103) and all the way down from Zoology (AS 101) again the courses are deemed too "elementary" for the "hard scientist" or simply that there are unnecessary. In the second year, the Agricultural Engineering option is exposed to some course based in their Faculty like Crop Science for Agricultural Engineers (CS 205) and Soil Science for Agricultural Engineers (SS 205).

Continuing with the Engineering option, in their third year only Animal Science for Agricultural Engineers (AS 307) and Food Science for Food Microbiology (FS 313) are taken in the Faculty of Agriculture. In their final year, the students are exposed only to Extension Methods (EE 418) while every other part of the program is done with the Faculty of Technology. The point is to demonstrate two things. Firstly, taking the Agricultural Engineering as an example, the program structure closely follows the needs of specialization in the design. Secondly, as shall be shown later, the program design excludes students in various disciplines from gaining a holistic understanding of farming as a social practice to be learned jointly with fellow farming communities. In short, farming is more than simply being equipped with technical skills but requires social skills as well. In the interviews conducted particularly on the issue of course structure, several students especially in Agricultural Economics, Extension and Crop Science options did not see why they had to take courses in Engineering. As one student summed up:

> To make the program more effective, I would suggest that most of the irrelevant courses should be scraped especially those covering the first year and second year and they should be replaced with courses that are actually related to agricultural development. You find that as an agriculturists student of agriculture, they are teaching you Engineering mathematics in the first year, what they call basic mathematics" and they bring you someone from the Faculty of Technology to teach you. The man will bias you towards his field. He will bring you all the complicated mathematics and as agriculturists we are basically biologists because we deal mostly with biological sciences. We are not so much exposed to mathematics, we did it but the man they bring you is an engineer and he gives you all the Mathematics.

It is also important to note that the students resented Engineering courses simply because they interfered with their specialization. As they said, in the third and fourth years they were happy with the program structure because they "stuck" to their areas of specialization as indicated in the previous chapters.

Looking at the options closely, it is quite evident that the course structure produced under USAID is based on the liberal notion of "specialization" in which some students are excluded from certain options as I have outlined before in the case of Agricultural Engineering. Furthermore, the internal evaluation boasts openly that apart from the setting up of several departments and courses throughout the Faculty, there has also been the use of "modern" teaching methods using equipment which had hitherto been unknown to instructors before the arrival of USAID. The report says that President Museveni was publicly happy with the Agricultural Engineering for its "uniqueness" in the University during the Convocation of 1990.

An important part in the program which merits attention here also pertains to the practical work. Routinely, practical work is devoted to the fourth term of each year which in reality comes after the official closure of the University (see appendix C). The fourth term is also found in other Faculties such as Education, Medicine and Veterinary. In principle, although some classroom teaching may be done during this term like it happens in Education, it is basically devoted to practical work throughout all professional schools of the University. From the interviews with the students and instructors plus information from the Handbook, the practical work is done according to the specialty of study. While the students in Agriculture may go to Kabanyolo University Farm, those in the Engineering option have assignments designed for them under the Faculty of Technology. For food Science & Technology, "tours" of factories of interest are conducted. To provide a clear picture, it is necessary to quote from the Faculty handbook:

> (a) The fourth term will include 5 weeks of the first term of the fourth year for B.Sc., Agriculture, B.Sc., Forestry & Bachelor of Food Science &

> technology. All students will be sent to the field for practical attachment and collection of data for special project reports (and for Forest Management Case studies for Forestry students). (b) B. Engineering will receive hands on experience in basic agricultural engineering skills under the local guidance of Training officer assigned to the department. In addition the students will carry out design project. (11)

Clearly, the model of agricultural training is based on the land-grant colleges of the US which stress "hands on" experience in the process of acquiring specialized skills in agriculture. In chapter four, I have also analyzed 72 research reports which were produced under the training program described above and found them to be overwhelmingly oriented to the modernization paradigm of agricultural development.

6. 4 **Problems of the Agriculture Program Structure**

The arrangement of the program based on the land-grant model (Ohio Bulletin 1993/94) raises a number of pertinent questions. First, as Ortega y Gasset (1964) and Macedo (1993) would argue, a specialized program is likely to produce agricultural technocrats with a narrow understanding of the problems which confront farmers. This kind of program would not provide students with a broad understanding of issues related to societal development. To cite Ortega y Gasset on the *Barbarism of Specialization*,

> Only acquainted with one science, and even of that one only knows the small corner in which he is an active investigator. He even proclaims it as a virtue that he takes cognizance of what lies outside the narrow territory especially cultivated by himself, and gives the name "dilettantism" to any curiosity for the general scheme of knowledge. (110)

Ortega y Gasset (page 11) indicates further,

> a fair amount of things that have been done on physics or biology is mechanical work of the mind which can be done by anyone... to divide science into small sections, and enclose oneself in one of these, and leave out all considerations for the rest is mere scientism and not science.

Macedo too, cites the case of a classmate in Massachusetts who had net heard anything about the Creole language although she was specializing in modern languages at the highest level of academic activity. The lack of critical literacy associated with this kind of training produces what Kuttner (1985) calls *savants idiots* in his reference to economists who are good at esoteric mathematics but are totally at loss with regard to social reality. Similarly, one Chair in the Faculty of Agriculture & Forestry when contacted to schedule an interview for this study declined to participate on the grounds that they are "technical people" who have nothing to do with rural development as he led the way to an instructor in the department who had just returned from abroad following the completion of Diploma course related to rural development. It is quite unlikely that scientists of this sort would be capable of a mode of scientific inquiry that takes full account of the complex realities of societal development.

In the case of students enrolled in Agricultural Engineering option, to take one example, they are likely to be limited in ability to solve urgent development problems. For example, although the Agricultural Sector Memorandum has expressed interest in extending "labor-saving devices" to rural women, the Agricultural Engineering graduates may not be able to design such appropriate technologies. Likewise, as many scholars (George, 1976; George, 1994; Rahnema, 1990) have argued, technologies which have been imposed under the modernization paradigm have deleterious effects both on the environment and human beings and must therefore be evaluated on those grounds. As indicated in the earlier analysis, a few students themselves accused the technologies for being irrelevant to small scale farmers although they also failed to link them with environmental degradation. Thus, any Agricultural Engineer who goes through the Makerere program is unlikely to possess a critical sensitivity to the burning issues of environmental damage associated with imported technologies and poverty nor is he/she likely to relate amicably with "primitive" farmers in the economy. As a result, program developers, administrators and students need to know the consequences and limitations of their actions if truly they have to participate in building a humane and just world.

Turning to the practicum component of the agricultural curriculum, insights from participatory action research provide a basis for some critical reflections. To begin with, no one can expect to train a farmer without availing opportunities for practicing farming in the real situation. The land-grant model which has renovated and consolidated Kabanyolo Farm is driven, however, by the need to impose capitalist agriculture and firms of production by insisting on the practicum which is conducted in neon-lit research stations. This kind of training is irrelevant to settings such as Uganda where the masses depend on their own labor to produce what they eat (Altbach, 1972). Simply by rehearsing agriculture in the University Farm without doing it in the real situation never produces technocrats with relevant knowledge and skills to raise questions of development that are grounded in the everyday realities of the rural majorities. As the students' research report demonstrate, the land-grant model is fundamentally inimical to participatory action research where the masses who are affected by the problems define them and are actively involved throughout the research process. Biggs & Farrington (1992) and Brass (1982) also confirm this point when they argue that the land-grant model of agricultural development has never succeeded anywhere it was imposed. It is inherently opposed to teaching approaches that draw their strength from the masses. As Gran (1983) acidly warns the World Bank, if Africans are to eat there is an urgent need to involve the masses in the solution of their problems as they perceive them on a daily basis.

In the Visitation Committee Report (1987) on Makerere University, an unfortunate endorsement of this kind of research was uncritically made. The Commissioners actually argued that funds need to be made available so that students can "tour" various regions of East Africa as part of their training. There was nobody to tell them, as Chambers (1983) does, that doing research on vehicles is the most regrettable manner in which to train a future a leader in that field. Why should resources be spent on traveling to Mombasa beach to do farming when thousands of farmers are at close hand in Makerere- Kivulu just at the entrance to the University?

Furthermore, because teaching itself is done through the "lecture method" as many students and instructors admitted, a multitude of problems emerge. As Freire & Macedo (1987) have persuasively argued, methods of teaching are never neutral but are dictated by latent ideologies which are either to maintain the status quo in which the poor majorities continue to suffer or to "name the word and the world" in order to change it. The claim by USAID in its reports that they have introduced dynamic teaching methods to the Faculty of Agriculture depends on their ignorance about or neglect for what critical theorists have to say about education in settings like Uganda. Similarly, the "uniqueness" of the Agricultural Engineering earlier referred to is equally unfortunate because their own evidence shows that these students are starved of those learning experiences which could elevate their collective critical consciousness to begin to raise questions regarding development at the national and global levels. The top-to-bottom methods of teaching are guilty of making a *prior* assumptions to the effect that the knowledge of the instructor is superior and that once planning has been done, the implementation of the teaching schedules shall flow smoothly. What they ignore is the vital point that the experience outside the classroom which are drawn into the classroom by the learners are significant in strengthening the understanding of the micro objectives spelt out by the instructors. It would be therefore useful to interrogate such experiences collectively in order to promote individual understanding of social reality.

Apart from putting in place the agricultural program in the University, USAID also claims that they have done a splendid job in providing Uganda with highly trained manpower which has the full potential to develop the rest of society. The students and their instructors were equally happy over this claim when interrogated. As with the interviews, it is important to ask what benefits have rural people gained from "expertise" embodied in post-graduate degrees? The graduates themselves in defense of their privileges commonly argue that the benefits will "trickle down" over time but the evidence of rural poverty in Uganda shows that few benefits have actually reached the rural masses. For Dore (1976) and Hudson (1992), an education based on the aptly termed "Diploma Disease" is irrelevant to the needs of rural development but bestows enormous advantages on the "credentialled" recipients. As earlier reviewed, the role of some international agencies in educational development has among other outcomes produced experts with little capacity or motivation to design and implement participatory, equitable development programs. More recently, the emergent and expanding "biotechnology revolution" provides another example of curriculum irrelevance for agricultural education in South societies like Uganda (Hobblink, 1992; Sousa-Silva, 1988; Mooney, 1983). To the poor majorities, the "revolution" simply means further deprivation through the concentration of the seeds in the North gene banks and the subsequent suffering through the profit-maximizing behavior of the agribusiness who own the monopoly of high-yielding variety (HYV) seeds and the pesticides. It was earlier stressed that the "green revolution" flooded the "market" with rice and wheat but also noted that this was achieved through enormous environmental destruction and the displacement of millions in the societies concerned (Bello, Kinley & Elinson, 1982). In the North universities where the majority of Ugandan scientists are educated, plans to restructure the curricula to agree with the "biotechnology revolution" are already underway (Newson & Buchbinder, 1988; Kenney, 1986). Furthermore, it is useful to remind ourselves of the memo which appeared in the *The Economist* (February 8, 1992) entitled **LET THEM EAT POLLUTION** before congratulations could be extended to international "aid" agencies like USAID for their "achievements" in societies such as Uganda. What was carried in this memo amounts to the uncaring attitude for the masses in the South by regarding their territories as waste disposal sites. How could one expect USAID to approve the teaching of political economy, for example, which has the capacity to sensitize students to the real dangers arising from the actions of North-based agencies? It is therefore not surprising that it was excluded from the course structure.

The integration of national agricultural research systems into the CGIAR through the active support of international agencies such as USAID poses serious problems for meeting the basic needs of the poor majorities since it often involves scientists in conducting irrelevant research. In reference to agribusiness in cattle and meat production in Latin America, Feder (1979:1361) has aptly pointed out this point.

> Consultative Group in Agricultural Research (CGIAR) is to provide an iron-clad guarantee that world-wide research and technical assistance are focused on problems whose solution is exclusive benefit to cattle and met agribusiness, particularly that of the US, not only research undertaken at four international research centers, also by preempting research which could be undertaken by national research institutes.

Furthermore, although societies in the South are invited as members just as they were drawn into IMF/World Bank schemes, the real political power lies with the "Group of 7", the most industrialized states in terms of supply of resources and orientation of research. For example, local scientists of the South societies are attracted by salary and prestige which accompanies involvement in international organizations such as CGIAR. Feder's work shows that research needs and interests are automatically controlled by more powerful members in such a manner that the interest of agribusiness are maintained. Translated to paradigms of development, the CGIAR approaches the problems of food as arising from reduced productivity of the land and human power. Consistent with the modernization paradigm, the remedy commonly adopted to respond to this problems is simply to increase food production and provide highly trained scientists. In other words, the technicist modernization model of agricultural development is applied to all issues on food production and research.

The 1992 Annual Report published by ISNAR in May 1993 reveals that its activities in Uganda included (1) assisting in the development of administrative, management and operational guidelines for the new National Agricultural Research Organization (NARO), and with the preparation of an agricultural research and training project to be financed by the World Bank (2) participating in the development of an organizational structure including reporting procedures and linkages to extension services (3) providing additional assistance with a recruitment plan and definition of the terms of reference and employment for new NARO employees and (4) the preparation of a special intensive collaborative project between Uganda and ISNAR as well as the development of a memorandum of understanding to that effect. The last item implies the beginning of long-term collaboration of between the Government of Uganda and the international agency on all maters pertaining to agricultural development. As in the case with Colombia (Galli, 1981), ISNAR was invited by the present Government of Uganda together with the UN Food Agricultural Organization based in Rome.

The outcome of the collaboration between ISNAR and the Government of Uganda is enshrined in the two-volume documents entitled *National Agricultural Research and Plan* which outline the major functions of National Agricultural Research Organization (NARO) and show also the administrative details governing its operation. The centerpiece of the two documents is the creation of NARO to bring together in one umbrella the nine research stations spread throughout Uganda (see appendix A 3) and sixty five variety-testing stations into a condensed number of research institutes, stations and programs. While the first volume is concerned with matters of strategy, organization and management, the second volume deals with research priorities and programs for the organization. The local input into the design was not lacking. Among the active contributors were the two sister-Faculties of Agriculture and Veterinary Medicine whose Deans were quite prominent in that process. This collaboration was also useful in supporting the MFAD program which had been started in the mid-1980s under the regime of Obote II as already stated. Other local participants were drawn from relevant ministries such as Agriculture, Animal Industry & Fisheries (MAAIF) and the key Ministry Economic Development and Planning.

The research plan that was the outcome of these endeavors identifies commodities, production systems and the research problems (see appendix D 8). The authors of the two documents say that the selection and the ranking of crops was guided by the national development plans already discussed at the beginning. The priorities were set according to "scientifically weighted criteria". In the second volume (1991:3), the following statement is found:

> Several methods are available to assist with the determination of agricultural research priorities. The most common methods include (1) a scoring approach involving the identification and weighting of multiple objectives and criteria for ranking commodities and research areas; (2) the use of economic surplus techniques and cost/benefit analysis to select commodities and research areas; (3) application of mathematical programming to choose an optimal research portfolio incorporating multiple goals and constraints; (4) the estimation of econometric models which use historical data to measure the benefits of previous research as a guide to the future; (5) the development and use of simulation models.

The authors add that the information used was obtained chiefly from published sources as well as through interviews with key scientists and top policy makers in Uganda. Without doubt therefore, the information presented in the two volumes was influenced by the modernization paradigm. Thus, possible input from grassroots organizations such as NGOs who are closely linked with the needs of the rural masses on a daily basis was excluded. The bottom-to-top approach essential in critical alternative for development was selectively shelved and in fact, could not even have occurred in the minds of the decision makers since they were working closely within the modernization development plans. Thus, the documents contain research guidelines that are motivated to serve the interests of the privileged minority who commonly see themselves as the "modernisers" of societies such as Uganda.

The ten commodities in the high priority list include bananas and plantains, millets, maize, cassava, sweet potatoes, beans, groundnuts (peanuts), selected vegetables, coffee and cotton. The Agricultural Sector Memorandum plus other internal documents which speak about national policy in Uganda stress these commodities whose development is meant to diversify the export base rather than respond to the domestic food needs although comments to that effect are occasionally made in the various sources. Also by improving the remuneration of researchers above the local earnings, one can see the privileged position of the "credentialled" members of this society. It also shows clearly how the elite groups are commonly drawn to act as what Frantz Fanon (1963) calls "the intermediaries" positioned between the local resources and the political needs of the North. In giving the approval of the new research system, one top scientists remarked that it would help greatly to draw them into the world of research environment from which they had been "ostracized", to use his own word, for several years.

Looking closely at the crops that form the kernel of the research agenda, one notices that from the point of view of domestic food supply, large numbers of people are made quite vulnerable to famine and hunger by the plans and strategies. Turshen (1989) gives a compelling analysis on how poor societies in the South are often subjected to malnutrition through the combined effort of the state and agribusiness. She reveals that this occurs in several ways; (1) by using arable land to produce non edible crops such as cotton, jute and sisal that have no food value; (2) by devoting much valuable acreage to crops that are considered food but have no nutritive value, for example coffee and tea; (3) by converting food into feed, as in the cultivation of maize and soybean destined for animal consumption in the North where people eat too much meat whose hides and skins are also needed for export; (4) by transforming food into exportable cash crops, such as in the production of groundnuts (peanuts) which is exported because of their value as sources of oilseed in exchange for foreign currency which benefits a tiny elite. Thus, any agricultural development policy geared towards the export of cash crops inevitably opens its peoples to food shortages and persistent hunger as the chase for foreign currency becomes stiff with the assistance of North-based agencies. The National Agricultural Research Organization (NARO) represents this policy orientation and despite the rhetoric of politicians and some academics, the masses are trapped in a situation in which they must continue to produce for the world economy which has massively exploited their labor in the past.

Through the interviews with the instructors, it was established that despite the danger which the anti-people research orientation based on export agriculture poses for the survival of the masses and the sustainability of development, hardly anyone showed any concern or solidarity with the masses. Instead, there was overwhelming optimism over the potential positive benefits promised by the integration of the national food system under NARO to the world food regimes. As one senior Animal Scientist summed it:

> Research at the moment can be divided into two groups; research at the University and research outside in the Ministry. I think there is some coordination and this coordination was brought about by the MFAD program. Right now I think we have NARO, that is an attempt to coordinate fully both what goes on in research centers and at the University. NARO was formed hardly a year ago. They are now trying to appoint people who will be working there.

The integration into the world economy through research has other notable repercussions from the point of view of the masses. As several critical analysts have persistently pointed out (Berman, 1979; Arnove, 1983; Feder, 1979; Altbach, 1972), such integration is geared to promote the corporate interests in North nations like the US rather than assist the rural poor. This point has already been labored upon in earlier discussions and need not detain us here. Furthermore, the North-South institutional linkages which commonly draw students from the poor societies are often supportive of such interests contrary with the official claim that such programs assist poor societies concerned with the liberal notion of "human resource development (Maxwell. 1984; Kater, 1984; Lovbreak, 1984; Shute & Moore, 1989; Wout van den Bor, 1989; Fuller & Waldron; 1989). Thus, the efforts so far made by ISNAR in Uganda, from the point of view of the critical paradigm, are likely to impoverish the masses even more.

Missing in the documents is any concern with approaches to knowledge production which draw the people affected to define their problems from grassroots perspective and participate actively in research planning and implementation. Hence, the CGIAR as the coordinating body for national research systems is not likely to effectively resolve the serious issues and problems of the poor Ugandan farmers. In this regard, George (1994:12) has made an especially relevant discussion:

> ICRAF (International Center for Research In Agroforestry), like other center in the Consultative Group on International Agricultural Research (CGIAR), is confronted with a dual problem; they have two sets of clients-farmers and national agricultural research systems, or NARS. Ultimately, yes, researchers want favorable research results to be adopted by farmers. They have to be sure of the usefulness of their products and that farmers

> can manage the technologies they develop. Researchers will say to me that they have to be sure a product is right before they release to the farmers. But if the farmers is to be the user then it's never going to be right unless the farmer is involved in its development. So that is a catch-22 situation. The CGIAR centers have another clientele, though, and perhaps this is easier to manage-the NARS. Unfortunately, when researchers deal only with other researchers, who then emulate them, there is never any model for dealing with farmers. That's the great dilemma for the CGIAR. They want to solve the problems but perhaps they don't know how to get close enough to the farmers to know what those problems are.

Altieri (1989), writing about US assistance to the South has stressed that the common neglect for the social scientists to be brought in as equal partners with other scientists in agricultural development is detrimental to the effective identification of problems and methods used to conduct relevant research which results in the possible benefits getting lost. In sum, the national frameworks of agricultural research through their integration in the North-dominated world food regime provides a powerful force that helps to shape agricultural education in Uganda. The participation of key agricultural scientists at Makerere University as well as technocrats in rural development areas is one clear indicator of this influence.

6. 5 **Paradigms of Educational Change in Uganda Since Independence.**

Besides the international influences discussed above, it is also pertinent to reflect on the national context of Ugandan education that overarches all fields of study, including agricultural science. Since independence in 1962, three major Education Commissions have studied the system in Uganda and proposed changes at different times. All except the 1978 commission that was interrupted by the Idi Amin war with Tanzania made reports to Uganda Government for action. Also in 1970 the Government of Uganda set up the Makerere Visitation Committee which gave birth to Makerere University as fully-fledged institution separate from Dar-es-Salaam and Nairobi colleges with which it had formed the University of East Africa (Southall, 1974). More recently, the NRM appointed another Visitation Committee to Makerere in 1987 while almost simultaneously appointing the Kajubi Commission to study the entire education system and make recommendations to the government. The report of that committee is what is now known as The White Paper currently being discussed by Parliament. A smaller but minor Visitation Committee to Makerere was again appointed in 1991 charged with the specific task of studying the sources of student unrest which had led to the temporary closure of the University. The documents produced were essential sources of the data for an enhanced understanding of the educational context that inevitably influences agricultural education.

It better to note at the beginning that educational change in Uganda has been greatly influenced by Professor Senteza Kajubi who has been Makerere's chief academic and administrator under different regimes in Kampala. He was a member of the first education commission ever after independence chaired by Professor E. B. Castle of Makerere University. Later he chaired the abortive 1978 Education Commission as we indicated above. Under NRM, Professor Kajubi did not only chair the Education Policy Review Commission (now "The White Paper") but was also once again the Vice-Chancellor of Makerere University and a dominant personality in the deliberations of the Visitation Committee. It is also noteworthy that among his recent influences was the establishment of the Institute of Teacher Education at Kyambogo (ITEK) as an upgrading teachers college on the outskirts of Kampala which together with the School of Education to which it is affiliated award education degrees in Uganda. Almost one year ago, he was retired but today participates as an elected member of the Constituent Assembly in Uganda which is currently deliberating on the new constitutional arrangements. With a Master's degree in education from Michigan, Professor Kajubi greatly favors the modernization paradigm of educational development as the following discussions will demonstrate.

Looking closely at the Visitation Committee report of 1987, the only serious issue raised in its terms of reference relates to making higher education relevant to national development stated in a general way while the rest of the issues are heavily concentrated on matters of economics and management. Below are the terms of reference which guided the work of the committee: (1) to look into curricula followed by various Faculties and Schools of the University and to advise on how best they could be modified in order to be best suited, both to educational and development needs of Uganda; (2) to advise on the University finances such as mode of funding, management, control, contracts and tenders since 1980 and to study the cost of study per student with a view to reducing it but without lowering the academic/professional standards; (3) to establish the machinery and qualifications for admissions to various programs of study, the nature of post-graduate student supervision, the funding for research programs and to advise on the structure of the academic year with particular reference to the possibility to introduce the North semester system of education; (4) to study the organization and functions of existing departments, faculties, institutions, schools and functional units and also to make recommendations on the training, promotion and disciplining of students and academic members of staff and set the terms of service; (5) to advise on the student welfare and related aspects of student personnel administration; (6) to study the structure of decision making within the University in relation to both academic and non-academic affairs; (7) to report on the relationship between the University and the Government; and (8) to attend to any relevant matters which may promote academic and professional excellence in the University.

Regarding research in the University, the report mentions only in a tangential way the persistent interference of international donor agencies in setting the research guidelines but fell short of critiquing the involvement of USAID is setting up several departments and courses in the Faculty of Agriculture & Forestry. In fact, the Visitation Committee strongly recommended the renovation of USAID which was seen as one way to persuade the students to play future roles in rural farming. In comparison with the White Paper, one could say that both documents say nothing new except to stress the need for more funds for research without bringing forth the crucial questions pertaining to the politics of knowledge. The White Paper is quite blunt on this point:

> The internal organization and administration of each university should continue to based on the principle of academic freedom to select its students, appoint its staff, determine the content of courses and teach, select areas of research and disseminate the results of such research. On the other hand, other higher educational institutions, such as polytechnics and colleges, should be allowed to develop gradually before they receive the goal of academic freedom, under guidelines of the proposed National Council for higher education. (109)

Interpreted in the critical paradigm, the White Paper urges the Uganda Government to distance itself from the definition of research problems and the dissemination of research results in order to protect the "academic freedom" of the researchers even if the research could be politically charged like in the case of biotechnology. Clearly stated, the status quo in which the masses have been excluded from raising issues about national research must be maintained and protected by the Government which is supported by the poverty of the masses. Put differently, the denial of "academic freedom" for the masses is not to be viewed as a poor policy for sustained development and growth.

Another striking feature of both documents is the lack of criticism for the teaching methods in the various programs which play a significant role in creating knowledge, skills and attitudes necessary for rural development. As indicated in earlier discussions in reference to agricultural science program, the top-to-bottom teaching methodologies are dominant but both documents failed to raise the possibility for alternative methods. There is however, a slight concern for the training of instructors in tertiary institutions in teaching methodology (page 109, recommendation 101). To cite fully,

> As a way of promoting the quality of teaching and learning in higher education, opportunities for full time or part-time professional training in teaching should be offered by the School of Education, Makerere University, to all staff members of tertiary levels institutions who desire such training. the School should be adequately staffed and equipped for this role.

Two issues need to be noted here. Firstly, the recommendation endorsed by government clearly does not mandate all instructors to undertake the proposed program of training apparently due to awareness of the kind of resistance shown by the agricultural science instructors. Secondly, it is quite doubtful also whether the recommendation intends to apply the alternative method of teaching which could promote "conscientization" for liberation as argued by critical educators (Giroux, 1988; Freire, 1988; Cardenal & Miller, 1987; Freire & Macedo, 1987). But from my own long-term association with the School of Education, such approaches to teaching and learning are absent although there is still need for systematic research on this topic. Thus, even if academics accepted such training, it is quite unlikely that any noticeable change could occur so long as pedagogue is based on hierarchical and banking teacher-learner relationships.

The White Paper is pinned on maintaining the so-called "international standards" by promoting the argument that quality has deteriorated over the years while pointing out further that the courses are not geared towards manpower needs. However, the document is silent on the kinds of jobs in Uganda which urgently need manpower for which the educational system should respond. Many scholars have voiced concern over the refusal by educators and governments to change their systems to serve the masses on the grounds of maintaining "international standards (Chinweizu, 1975; Mazrui, 19992; Mamdani, 1993; Okot p'Bitek, 1974). That is likely to be the reason why both documents failed to raise the crucial questions in this regard for the entire educational system. Instead, the Visitation Committee laments about the lack of practical work.

> One could see, at a glance, however, that many of those practical aspects could not be carried out due to the constraints already mentioned. For instance, it is stated that the students reading for the B.Sc. (Agric.) will be required to among other things to have an excursion in East Africa for one week (whenever possible). These tours have not taken place for many years due to lack of finance and transport.

As Spitz (1978) acidly points out, poor people are only meant to be photographed rather than talked to by the "development tourists" who are educated at the heavy expense of the taxpayer's money. Clearly, thousands of farmers inhabit the surrounding slums of Makerere-Kivulu and Katanga quite close to the University and it would have been a good education to start by talking to them as a deprived group whose insights about farming could greatly enrich agricultural education before embarking on what Chambers (1983) calls "development tours" of the elite.

As noted also in the preceding discussion, the practical training conducted in small plots in Kabanyolo can not produce a person with a good understanding of the realities of farming. The graduates could not be expected to have acquired skills and attitudes which could be useful in rural development in the artificial farming conditions in Kabanyolo farm. When the Visitation Committee harps about the lack of practical training for professional schools, a call is being made to increase the burden borne by the poor majorities to provide education for the elite. The issue of extending the agricultural science program by an additional year has already been covered in the interviews.

It would appear that what is lurking behind both documents is not any serious change in the educational system but the need to fulfill the demand of structural adjustment as outlined in *Education for Sub-Saharan* Africa published by the World Bank. Viewed in this way, the reports appear to be merely administrative procedures to railroad through policies within the financial-intellectual complex in which the South societies have been trapped (Samoff, 1993). They are overly concerned with administrative issues dictated by the international agencies rather than any genuine desire to translate the colonial education systems into viable instruments of social change for the masses. As a result, one can hardly pinpoint any significant proposal in the documents which relates to the politics of knowledge hence marking the celebration of the triumph of conservatism in the entire educational system in Uganda.

In reference to Human Medicine, to draw another example, the Committee report does not carry much that is new except the introduction of courses related to primary health care. As the World Bank (1993) report on social sectors in Uganda reveals, even this has been undermined through structural adjustment programs which have curtailed the state social expenditure drastically. This seriously undermines even the slightest intention which any government may have to assist the rural poor. As stated before, to justify shifting expenditure to the consumers, the World Bank in the same document approvingly endorsed traditional healers while castigating the same people in farming for not using "modem farming" methods. There is no mention in the Visitation Committee Report, however, about tailoring the medical science curriculum to support indigenous healing as recommended by international agencies, albeit not in a holistic framework which would also demystify the dominance of transnational-controlled "health" industry (Navarro, 1976, 1983).

Most importantly, although the Visitation Committee mentioned the introduction of Political Economy into the entire tertiary education, it is silent about the methodology to be used in teaching. It would appear that the idea was adopted from President Yoweri Museveni (1992) who has been a passionate advocate of its teaching in education especially for institutions of higher learning. Given the method used in the collection of the data used for the report, the proposed topics for study do not appear to raise any important questions about society from the perspective of the marginalized but are eclectically assembled to suit the purpose for which they were meant. For example, from the point of view of development education, medical students need to know how the intersection between politics and economics at the global level yields undesirable health conditions for the poor majorities in the South. It would be useful to design the program of study through dependence on the voices of such groups.

The point is surely that doctors need to know how structural adjustment programs accepted by the governments leads to death in their societies. As Theresa Funiciello, a welfare rights organizer in the United States forcefully indicates,

> By almost any honest measure, poverty is the number one killer of children in the United States. Doctors don't say so, at least not in so many words, because poverty isn't a medical affliction-it is economic and social one. But it kills just the same. (Cited in Waring, 1988:179)

Little or no attention is made in the reports to alter the training of doctors such that they become cultural workers at the same time. That is, like in the case of Agriculture, the document is generally silent about training this group of professionals in actual rural conditions where they could gain useful skills and attitudes to appreciate fully the numerous problems that confront the masses. Systematically through the documents, this is carefully avoided. Systematically also throughout the reports, no serious concern has been given to aspects such as indigenous language training through which students who are now predominantly from urban-based lifestyles could access the cultures of the masses although the White Paper timidly endorses it in a general way.

Thus, it is clear that the approach adopted in the various reports is based on the modernization paradigm of educational change. This approach defines knowledge to be "out there" for which only the methodically trained scientist can have access. The kinds of changes therefore proposed are geared towards the perfection of objectivity and neutrality of science and learning without mounting a general critique and transformation of the entire establishment which oppresses and excludes the vast majority of the population from public participation.

6. 6 An analysis of Master of Science (Agricultural Economics) Theses

As said, the graduates in MFAD program are destined to occupy important position in Uganda as top-level decision makers and planners. It was precisely for that reason that a number of students were recruited into the MFAD program to study Agricultural Economics. Although the scope of this study prevented a detailed systematic analysis of the MFAD program, it was deemed useful to include at least the post-graduate research output of the graduate students of the program. How the graduate student researchers conceived their research problems and gathered data could enrich our understanding of the policy environment in Uganda at the present time as well as the future.

As the research work primarily focused on mainstream Economics, the 12 theses examined used econometric methods to gather data and to draw conclusions. Without exception, all the theses examined made conclusions that were congruent with the philosophy of economic liberalization currently underway in Uganda. The researchers overwhelmingly echoed government policy as earlier reviewed. One could say that this congruence between what the theses say and what government policy stands for is no surprise if it is remembered that it was precisely the reason that the MFAD program was put in place. Although the problems of mainstream Economics have already been touched upon (Burkett, 1992; Kuttner, 1985; Waring, 1988; Sweezy, 1972), there is no harm in repeating some of the issues here since the focus of this section is principally laid on the theses. Briefly stated, Economics emerged as a discipline to explain economic life in the North at a time when there was investible surplus with few investment outlays. Put more simply, Economics owes its origin to the growth of capitalism as a discipline that uses certain conceptualizations to legitimize the existence of that system. As a result, the economic mode of analysis must necessarily avoid history or any other form of approach to human development which in any slight way integrates politics with economics. Thus, while good at mathematical manipulations the graduates in their theses show a deep alienation for societal realities.

For example, in a study based on price and risk in cotton production, it was argued by Kevin T. Akoyi (1992) that Ugandan farmers are "price responsive and risk averse". The Uganda Government was then advised to provide the "enabling environment" to support the economic rationality of the farmers. To cite the abstract fully,

> The findings indicate that the current pricing and marketing policies for cotton industry are not viable as evidenced by meager production levels.

> The proposed policy to liberalize cotton marketing, is expected to go a long way in boosting cotton production. Government will play an important role in providing higher and sustained levels of Agricultural investment, ranging from provision of infrastructure, support for research and extension and the provision of a stable economic and political environment. Cotton processing efficiency has to be improved by strengthening the management of unions and transferring them to the private sector through sales. The allocation and administration of crop finance will be carried out by commercial banks and subsidies will be eliminated at all levels.

This abstract echoes the Agricultural Sector Memorandum (1993) refered to many times before. On its page 61, the document says the following on subsidies to farmers from the state:

> ... Government should move to reduce market distortions caused by the distribution of inputs at below market prices, and foster periodic dialogue with major consumers and suppliers of fertilizers, pesticides, and animal husbandry chemicals. The following plan is recommended. First, MAAIF should withdraw from the physical distribution and sale of agricultural inputs. Donated fertilizer should be made available at commercial prices ex Kampala to the private trade for sale to farmers. This withdrawal should be phased, to take into consideration the need to educate the trade on handling of toxic products, to ensure availability of strategic low volume high value products, and to assist with adjustment in industries built on the use of subsidized inputs. Eventually, however, Government should play only a regulatory role in trade.

Clearly, a congruence exists between the proposals in structural adjustment programs and what the study above proposes, namely, to relegate the Uganda Government to the minor role of providing the support which is essential for private accumulation of wealth. In the Sector Memorandum, the subsidies are eliminated and the capacity of the weaker farmers to acquire inputs is greatly diminished. In many studies it has been shown that agricultural modernization along the lines suggested above empowers the strong rather than the weak (Hartmann, 1981; Galli, 1981; Bernstein, 1981).

It is also useful to ask in the first place what forces were involved in the introduction of cotton cultivation before accepting to focus on supply and demand functions. This query would require a movement back to history for which the modernization paradigm has little respect. What the author refuses to see is the old point made before that cotton was imposed harshly without regard for either the welfare of the masses or their environment (Vincent, 1982). Also associated with it was the introduction of forced labor which was repeated during the time of Idi Amin when authorities mandated every able bodied person to grow cotton for export. In a truly capitalist economy which Economics as a discipline legitimizes, the social relations of production do not require forced labor which is easily available to be exploited. The author ignores the history pertaining to the development of capitalism in the North and its impact in the South societies like Uganda.

What economists ignore is the social reality which exists in Uganda today where forced labor is conscripted to build schools, maintain roads, erect pavilions for visiting urban dignitaries and the like. What this reality reveals is that economic categories imported from the North through neo-classical economics are not applicable to our context and therefore there is a need for alternative modes of investigation based on political economy. Forced labor is not part of the mental phenomena of the public in the North societies from which principles of economic understanding are imported.

Although the masses have grown cotton for almost one century toady, it is useful for economists to ask where it goes and what the benefits to the local economy happen to be. In today's Uganda, people can be seen wearing winter clothes from the North known popularly as *mivumba* (second hand clothes) and yet they grow the cotton which presumably went into those clothes. Clearly, there is need to integrate Uganda problems through an alternative critical perspective. Although Brett (1992) who has recently written on Rural Development in Uganda has much admiration for the Northern Uganda Reconstruction Program (NURP) which depends on the World Bank funding to set up infrastructure in Northern Uganda, what he forgets though is that there is cotton behind these efforts. The "economic rationality" which the author talks about is also really that which the masses have shown without leadership and organization by growing food crops for consumption rather than cotton.

The obsession which economists show for market efficiency in a vacuum yields problems that they do not solve. In a study conducted by Swaibu Mbowa on the "Response of Agricultural Sector to Macro-Economic Policy Incentives: The Case of Agricultural Export Growth in Uganda" part of the abstract runs as follows:

> Uganda just needs to be an efficient producer of her exports so as to maintain a reasonable margin between costs of production and the world market prices in order to capture a sizable international market share of the commodities. Therefore new policy directions should emphasize investment in technology, and the allocation of resources towards the production of export crops in which Uganda has a potential to attain comparative advantage in the long-run, given the country's resource endowment.

Before casting any comments, it is necessary also to cite the research problem as stated by the author.

> ... The aim here is to identify economic forces that are thought to influence the performance of the agricultural export sector. In order to be able to address the above problem, there is need to know the actual nature and magnitude of responsiveness of exports to macroeconomic incentives instituted by government. This will be basically to enhance policy formulation process based on empirical results...

The author believes firmly in the notion of "comparative advantage" closely administered by the Agricultural Sector Memorandum. In fact the author makes this point quite clearly in the thesis where he relates agricultural sector to government policy as follows:

> Then, if a free market is an efficient mechanism for allocating resources, the task of government would only be related to bringing market forces closer to a competitive market situation. *Meaning that government policy is to facilitate or enable a competitive change to take place in an economy and ensure that operations are based on market incentives, other than interventions in fixing prices.* The biggest snag that undermined the cash crops output was the failure by the concerned policy makers to judge whether the concerned producer prices were effective in giving farmers signals (incentives), which were consistent with national production targets... *The country has still comparative advantage in coffee production in economic terms.* Internationally, Uganda is a relatively low coffee producer. With the international coffee environment remaining somber, there will be scope for retaining and increasing market share as higher cost producers drop out. (*Italics added*)

On its page 70, the Agricultural Sector Memorandum (1993) has gone to the extent of persuading the Uganda Government that there is actually a thing for the masses known as "comparative advantage" to be pursued. In effect, the purpose is to incarcerate societies like Uganda in cash crop cultivation to satisfy the political needs of the North which have come to depend so heavily on coffee. Museveni (1992) makes a reminder that coffee was introduced into Uganda through *Kiboko* (it means whip) but such historical realities do not interest economists. Thus, when future policy makers believe that there is such a thing as "comparative advantage" without examining the subtle mechanism used to pit primary-commodity producers against each other by political organizations such as the Bretton Wood institutions, then the marginalization of the masses is bound to worsen.

To labor this important point on comparative advantage further, it is necessary to draw the insights provided to us by Harry Magdoff (1972) in his introduction to Pierre Jallee's book entitled *Imperialism in the Seventies* in which he draws the fallacies promoted by the economic concepts in the trade relationship between England and Portugal. To cite fully,

> The accepted doctrine here is that worked out by David Ricardo, a doctrine that is drummed into every student who takes an economic course in the United States. We are referring , of course, to what is known in the economics literature as comparative advantage. According to this theory, when the impersonal market place is the master, each country will concentrate on making those goods for which it is best suited and will buy from other countries products for which they are best suited. In this way, each country gets the maximum benefit from foreign trade... This comparative advantage doctrine has, as noted above, become almost universal dogma in Western culture, to the point of becoming accepted as the common sense of our times. Not only is the doctrine itself treated as absolute truth in economics textbooks, but Ricardo's very illustration is repeated over and over again. The frequent recurrence of this illustration is easy to understand, since it is plausible, and the facts seem to be consistent with the theoretical model. Indeed, at the time Ricardo wrote, and perhaps up this day, he was absolutely right: England did have comparative advantage in making cloth and Portugal in making wine. But the rub is that he was equally wrong in thinking that this was the inevitable result of "pure' economics or that it proved the inevitable superiority of free trade.

What mattered was not a knowledge of abstract economics but of history. The comparative advantage was less rooted in the soil or labor productivity but in the fact that England at the time had superior naval power while Portugal who could not maintain their overseas colonies needed the protection of the British navy. The comparative advantage was therefore an outcome of politics rather than free market economy. In the case of the South societies, comparative advantage means their continued incarceration in the primary commodity production that supports the unchanging superiority of the North over the rest of the world. Well educated in the modernization paradigm of development, the student researcher could not demonstrate any understanding of this intersection between politics and economics at the global level to be able to decipher the implications for the poverty of the South.

Harriet Nannyonga (1992) conducted a study on "The Supply Response of Sugar in Uganda: A Donor-Funded Industry" to determine how the production of sugar responds to price and non-variable variables and in turn to gauge to what extent donor funding influences this supply response. She wrote in the abstract as follows:

> The study was undertaken at both macro (national) and micro (Kakira Sugar Estate) so as to determine how sugar production in Uganda responds to price and non-price factors, to discuss the effects of donor funding on the industry, and establish some general conclusions for use in policy implementation... The study recommends that to ensure increased sugar production and promote self-sufficiency, a good price must be given to producers, which at the same time will not result into a decrease in the production of alternate crops which are a focus in the diversification drive. Increased cane production will be further guaranteed given an effective exchange rate, a high wage rate, and an improved level of technology and

> supporting infrastructure, research and extension services, weather and political stability. Donor funding will enhance the responsiveness of sugar production to these variables but as an independent variable, has not resulted into a positive cane production response.

To begin with the production of sugar in Uganda is done by private enterprises mainly owned by Asians as in the case of Lugazi and Kakira Sugar Works although there are some outgrowers as well but whose contribution is negligible. The national agricultural research priorities marginalize sugar considerably largely because it is a private concern although NARO indicates the possibilities of initiating a dialogue with the industry. At present Uganda depends on sugar imports and the prospects to increase its production for export are slight leading to the loss of interest by profit maximizers.

In reality, the concern of the author was to endorse the NARO policy of marginalizing sugar production as a research activity simply because there are no benefits to international finance capital. While acknowledging the price responsiveness of sugar production, the author is quick to add that the increased production must not interfere with the production of alternate crops outlined in the diversification drive. Clearly, if the price "clears the market" which is impersonal as economist always argue, then why introduce into the analysis decisions made by national government to embark on crop diversification? Also, as with all other researches among the cohort, the reality of the masses in conducting farming is hardly taken into account since they are expected to show "rational behavior" of responding or not responding to price changes. Why the masses in Uganda have no access to sugar is not an issue that interests economists who are motivated by the single-minded goal of profit maximization. It should also be noted that donor-funding is said to relate favorable with other factors such as weather in augmenting the acreage devoted to sugar but not as independent variable. In other words, structural adjustment loans (SALs) should not go into the risky sugar business easily as a factor upon which the others would depend.

Nannyonga's findings reveals other interesting insights. While she stated that donor funding enhances sugar production, she proceeds to speculate widely in the language of the modernization paradigm by dwelling on issues related to management and efficiency failures in increasing the acreage in typical fashion with international agencies.

> ... Increased funding has to date not led to enhancement of sugar cane acreage response. This could be due to the fact that there is usually a big lag between signing up funds and actual disbursement which, when compounded with inflation, over-valued exchange rates and diversion of project funds, all serve not to enhance sugar production but rather hinder.

> It could also be simply because in the rehabilitation program, funds are initially directed to the installation of new or repair of old machinery, staff recruitment and improvement in the infrastructure and later to the plantations. This effects may not have been captured in the acreage response since quantifying them is difficult.

Lurking behind her results is the lack of interests which international agencies show for sugar production which, if it had existed, is quite likely that conclusions of the study would certainly moved in the direction of putting more land on plantations hence displacing the masses. Also, the author as in the other cases as well is hardly interested in how the lowly-paid factory workers perceive management. As a result, she fails to appreciate that factory workers who are exploited by entrepreneurs can sometimes express their hunger and anger quite openly as happened in the middle of 1993 when Kakira Sugar Plantations were burned down leading to the loss of millions of shillings to management. For Scott (1989), this kind of reaction from the exploited need to be looked at as "the weapons of the weak". The point is that economists often are at a loss in coming to grips is a holistic way with realities of the masses since their main preoccupation is placed on profit maximization.

A similar study was conducted on rice as "An Economic Analysis of the Rice Industry in Uganda: the Case of Kibimba Rice Scheme" by Joe Ssenteza (1992). The national research organization has little interest in rice too which partly provided to Uganda by the rice company where the study was done (originally started by Chinese). Again Uganda does not have the "comparative advantage" in rice production and consequently the study concluded that small-scale farmers will continue with that crop. After stating that commercialization of agriculture requires market surpluses for export in order to purchase improved inputs, capital and technology and also that it is necessary to raise productivity and economic growth, the author writes the following as part of the abstract:

> The results suggest that Uganda will continue to depend on small outgrowers of rice because large mechanized rice farmers like Kibimba has not sustained projected levels of 2000Kg per hectare of paddy rice which is below their profitable levels.

As with all externally-funded projects, Kibimba was imposed on the people of Uganda by Uganda government after independence. Whether or not people in the area wanted this rice project was not discussed extensively in a democratic way and today hardly anyone misses the collapsed company. It is quite possible that the company has already been sold to some private individuals under the Economic Recovery Program (ERP) of the present government.

In another study conducted by J. N. Kamya (1992), interesting insights were generated from the analysis on fertilizer use in Uganda. The belief in the role of government to generate wealth is evident here as well. In a fairly lengthy abstract, the author argues that increase in population calls for increase in food production.

> Given the low fertility of most soils in Uganda, increased agricultural production would call for increased use of organic fertilizers. Even though soils are generally poor, evidence shows that fertilizer application in Uganda is not a common practice. Very little is known regarding factors behind low fertilizer use. Very little is also known as to the additional production that would result from increase in crop or input price, or concerning the time it would take for given advance in price to show its full impact. A government seeking to improve price incentives with due regard to subsequent production would need to know at what point production is stimulated. This study seeks to explore these issues and determine with reasonable accuracy elasticity estimates which would help decision makers formulate policies that induce increased input use and enhance agricultural production. Using an econometric model and time series data from 1970-1990, aggregate demand for fertilizer is estimated. The results indicate that factors affecting fertilizer consumption in Uganda are economic, agronomic and also sociological. Specifically, wage rate and the price of maize and tea significantly influence fertilizer use. The general conclusion is that a balanced combination of price policy and extension education should encourage farmers use fertilizer and enhance productivity.

In the use of econometric models and time series data, the social and political forces which influence and shape decisions by government officials and individual farmers are ignored as demand is simply lumped together over the years. There is also the problematic claim that one can depend on the data thus generated to make inferences regarding the future. What is more, the author shows no sensitivity towards the use of fertilizers as potentially dangerous to the environment and humans alike (Carson, 1962; Common, 1990; Bello, Kinley & Elinson, 1982). As noted in the previous pages, the undergraduate research reports and the interview data also indicated a strong predilection towards the use of fertilizers to enhance productivity. Such inputs are costly and could not be available to poor farmers while their importation drains the foreign exchange reserves earned by the masses but enriches transnational corporations which monopolize their production.

Kamya also provide interesting insights to understanding the policy environment in Uganda. In the introduction of his work, the following paragraph is carried:

> Uganda, "the Pearl of Africa" is now one of the poorest and debt-ridden countries in Sub-Saharan Africa, with a low GDP per capita of $250 and low production levels. One potential solution to these problems lies in the " green revolution": which has resulted in significant increases in crop yields and output in many parts of the world. Countries like Uganda must utilize the developments of modern technology in agriculture. Growth in agricultural production has been associated with increases in purchase of farm inputs such as fertilizers and improved seed.

There is little need to comment here since the previous chapters critiqued quite closely the "green revolution" and its negative effects on the environment as well as exacerbating social inequalities. Clearly, the student researcher is well trained in the modernization paradigm while the description of Uganda as the "the Pearl of Africa" which a former dictator, Dr. Milton Obote habitually chanted while adding "shall rise and shine again", has in practice only meant the misery for the masses. The reluctance to use the Uganda shilling as a measure also reflects an aspect of dependency.

Furthermore, the author, true to his training, does not seem to have even the slightest need to study the history of "Sub-Saharan Africa". Confronted with this observation, the common response would normally be to regard it as a triviality given the pervasive neglect of the political economy of representation and identity politics. Already isolated an stigmatized as the "dark continent", the author proceeds unproblematically to embrace the imperialist economic ideologists from the same oppressive forces which have produced misery (Brantlinger, 1985). What better thing for the oppressive forces to have than a policy maker who lives in an illusion generated by the "green revolution" of the modernization paradigm.

Another study looked at the "estimation of Demand parameters for food commodities in Uganda" by V. Tamanyirwa (1992). The abstracts states as follows:

> The study used econometric investigation to examine the demand relationship of a few major food commodities in Uganda. Implementing both the ordinary Squares and Cochrane Orcutt correction procedure for serial correlation, the demand for Ugandan food commodities has been estimated. The statistical estimation encompasses 21 crop years from 1971 through 1991... The study recommends that to enhance food security, more attention should be given to the reduction or complete removal of production constraints so that yields are raised and jobs created with the result that there is increased food supplies in the rural areas, and income generation...

It has been noted that the use of econometric models in understanding social reality is riddled with a number of problems. Also, the recommendations that are geared towards the elimination of production constraints tally closely with the structural adjustment programs which argue for the distancing of the state from national development. Furthermore, the assertion made to the effect that production increases could be raised through free market economy ignores the true constraints to productivity such as the unequal distribution of land and other resources. As several studies have shown (Hartmann, 1983, Griffin, 1976; Feder, 1976) rural productivity and famine are associated with the unequal distribution of land resources in particular that arises from the modernization of agriculture.

The problem of the study was stated within the modernization of paradigm of agricultural development as shown below:

> The food security situation in Uganda, like any other developing country, is attributed to a number of causes. These include: drought, deteriorating economic condition and rapid population growth without corresponding increases in physical, social and economic resources. This is worsened by inappropriate policies lacking sufficient research based on sound data.

Missing or ignored is the issue of the distribution of resources as discussed immediately above. Once this unequal distribution is recognized, it becomes easy to understand the issues on drought and population growth or "explosion" as referred to by the student researcher. But because the modernization economists think and believe that economic efficiency is inherently antagonistic with equity, such an analysis does not surface (Kuttner, 1984). It is worth remembering that also in the undergraduate reports, examination questions as well as the interview data there was a strong belief that population growth is largely responsible for underdevelopment and poverty.

B. S. Ongom (1992) conducted a study on "Food Crop producers Response to Economic Incentives: A Regional Analysis of Soroti District". According to him,

> The study was set to examine the response of small holder food crop producers in Soroti District to economic stimuli in their production of staple crops; millet and groundnuts. Non-economic factors inherent in traditional food production system that may influence the response of farmers to economic incentives were investigated. These factors have been identified as; farmers need to be self-sufficient in food stuffs indicating their risk averse behavior, and the production techniques used in food crop agriculture. The study used Ordinary least squares (OLS) regression techniques to analyze both cross-section and time series data. Cross-section data was obtained through a field survey conducted in the study area in July, 1991; and the time series data collected encompasses 21 crop years, 1970-1990. The results of both analyses indicate that own-price elasticities of supply for staple crops studied, millet and groundnuts are significantly positive... The study asserts by implication that farmers are price responsive, but for this to be fostered, the availability and use of modern inputs and production techniques be emphasized and made a reality in food crop production systems. Other factors such as marketing

> systems and farmers' food security have to be re-addressed in order to promote market-oriented farm production.

It is important to note that the NARO document (Vol. 1, page 27) places groundnuts and millet under High Priority items in the drive to diversify the export base of agriculture in Uganda as stated in various official documents.

As Turshen (1989) has eloquently articulated, food shortage and famine arise from public policies that export food such as groundnuts for their oil seed in exchange for foreign currency from which the masses benefit very little. As a result, the poor health among the masses is an outcome of poor feeding since agricultural policies are unrelated to the need to care for them. As with the interview data and the research reports analyzed earlier, the author believes quite strongly in the utilization of modern inputs to be a remedy for rural poverty and underdevelopment but without showing any understanding on how such actions not only damage the ecology but also impoverish the masses. The study as it stands was motivated by the need to confirm agricultural policies which were conceived in advance through the structural adjustment programs.

Finally, even the only study on the impact of structural adjustment on agricultural production of four crops: cotton, maize, coffee and beans failed everywhere in the report to raise any criticism regarding the negative side of the programs. This was done by Namara Katabarwa (1992) with a focus on the supply side economics.

> Uganda's economy was once reckoned to be one of the most healthy in Sub-Saharan Africa, deteriorated drastically after 1971 due to mismanagement, internal and external shocks and poor domestic policies. By 1979, the country ran out of foreign exchange reserves and the balance of payments (BOP) crisis deepened. Consequently, the government agreed to implement a World Bank (IBRD) and International Monetary Fund (IMF) funded structural adjustment in order to prevent the economy from grinding to a halt. Structural adjustment programs include a package of supply side policies whose sole purpose is to encourage increased agricultural production. After more than ten years of structural adjustment, it is important to assess the impact of the programs on agricultural production.

Namara Katabarwa gives the impression that the Uganda Government had actually a choice to make regarding the structural adjustment loans (SALs) from the Bretton Woods institutions. A similar belief is seen in the interview data provided by the policy makers and bureaucrats who erroneously believed that World Bank "will normally do what you want", implying great flexibility in policy. It is also worth noting the belief the author holds over the previous performance in agricultural production by his implied reference to the "the Pearl of Africa" as discussed above. What remains unanswered is whether the so-called the "good old days" also meant the prosperity of the rural masses who are responsible for the economy in the first place. As George (1976) states, the elite are not victims but beneficiaries from the dependent economic relations with the North.

Continuing with Katabarwa's abstract, using econometric models for the study, he pointed out further, that the supply of the four crops has not increased mainly due to administrative and efficiency considerations.

> The study shows that the supply of the four crops under study... has not increased due to structural adjustment. The reasons for this low supply of four crops under study were explained by internal shocks, wrong timing and sequencing of policies, lack of fiscal discipline on the part of government, lack of timely and adequate financing of the structural adjustment programs and the exchange devaluation whose benefits do not show back to the producer due to high inflation rates and government excessive taxation of the agricultural sector.

To begin with, the student researcher has hidden the true impact of the programs on the masses by making the erroneous assumption that they are well-intentioned to mitigate poverty among all social groups. As earlier noted regarding the World Bank (1993) document for Uganda entitled *Growing out of Poverty*, the social expenditure on education, health and other sectors has been drastically cut as demanded by the structural adjustment programs. The social reality arising from this step has been that the lives of millions have been made even more miserable through these measures. As usual with mainstream economic analysis, the numerous deaths that occur on a daily basis in societies such as Uganda from manageable diseases such as Malaria are excluded from any serious consideration. Instead, the students researcher was content to dwell on issues related to management and efficiency without asking the fundamental question why the society has become so dependent on external funding.

An equally misguided view is also proffered through an erroneous claim that the government overtaxes agricultural sector treated as an indicator of "irrational" economic behavior. What the research failed to explain is where else the government could generate internal revenue to run the meager social services without further taxing the natural resources and the poor majorities even more. Amin (1981) raises a similar question in his critique of the role of the World Bank in agricultural modernization in Africa. In fact, much of the infrastructure in Uganda is being supported through non-paid labor from the masses as we indicated in the previous analyses.

Typical of mainstream economic analysis, the resistance which farmers have put up against the cultivation of cotton in Uganda is simply shelved. Nor are issues related to environmental degradation with particular reference to cotton cultivation as Vincent

(1982) has well argued raised by the student researcher. Instead, he tumbled into viewing the government as an engine for national growth without paying attention to the national and international forces which have frustrated that role (Kothari, 1987; Ihonvbere, 1994; Wallerstein, 1993; Amin, 1991). Even in stressing this role, the student researcher consistently prescribed the IMF recipes for the government especially on the issue of providing an "enabling environment" for which the poor majorities pay dearly for its maintenance. Truly, the student researcher would have succeeded in the program of study without gaining any firm grasp on the marginalization and the polarization which is the product of structural adjustment programs and the resistance offered by the farmers. In short, the major problem with mainstream economic studies is that by neglecting history and any other mode of analysis which integrates politics with it, they fail to analyze social reality in a comprehensive manner that can make sense before the masses. From the theses examined, it is very likely that the students as future decision makers will be strong proponents of the modernization paradigm.

CHAPTER SEVEN

SUMMARY AND CONCLUSIONS

7. 1 Major Findings

In the field of international and comparative education, researchers have not paid much attention to the study of education and development from the perspective of paradigms. Quite often the tendency has been to focus on the wider sociopolitical implications of educational provision without going into depth to construct a clear understanding of the impact of such education at the actor level and to scrutinize closely the ways in which narratives and identities are formed. The evidence which is available to this study to a large extent indicates an overwhelming preference in the agricultural science program for the modernization paradigm. Before drawing implications for the organization of agricultural program in Makerere University, it is useful to provide a summary of the major findings upon which conclusions are based.

(a) Views on Poverty and Underdevelopment The data from the interviews with various groups when synthesized with the documentary evidence indicate an overwhelming preference for the modernization paradigm as a philosophical basis to undertake national development. Poverty and underdevelopment were viewed as outcomes associated with internal obstacles and constraints to development and progress. The interviewees persistently argued that underdevelopment and poverty among the masses to a large extent resulted from the lack of education and technical-how to enhance productivity. These views were strongly reinforced by students' research reports which saw the rural farmer as "backward and primitive" who needed "salvation" through the expertise and technology of scientists and the government.

The remedy commonly proposed is to provide farmers with an education to enable them to use modern technology in the hands of the state. The accent on the role of government in the technology extension is viewed to be critical. The conclusion to draw is that students and their instructors as well as government bureaucrats viewed underdevelopment in terms of the incapacity of the masses to be more productive and made prescriptions for improvement that were consistent with the role of the state in facilitating modernization. Missing in the evidence given was the role of global political economy in marginalizing and excluding the peoples of the South within the international division of labor. Thus the labor and other resources from the South have been systematically exploited for several centuries for the benefit of the North. In the contemporary post-independence period, have likewise disproportionately benefited from the modernization paradigm of development, an issue which is not acknowledged or considered a problem in virtually all the data gathered from the interviews, policy documents and research output.

(b) Implications for National Development Since the future makers and development technocrats are likely to come from these cohort of students, the influence they could possibility have on the millions needs to be evaluated critically. They are likely to be shaped by their education and training to pursue modernization policies in development in which the role of the state and key multilateral and bilateral international agencies is central. The past development decades show that this path has been catastrophic throughout the South as will be discussed in more detail later. All evidence collected show that the current and prospective agricultural scientists at Makerere University shared a positive evaluation of the international agencies in development. Thus, students show no sensitivity to the past development record in which millions of people have been deprived of their basic needs due to uneven modernization programs. Faculty and the students generally failed to analyze and criticize the congruence of interests between local elites and global capitalist agencies. Consequently, Makerere's agricultural program couched in modernization logic is likely to produce graduates who will support further hemorrhage of unsustainable resources from societies in the South such as Uganda which have already suffered dearly from such exploitation.

(c) Curriculum Relevance for National Development Views on the relevance of the curriculum appeared to be divided. While the students expressed dissatisfaction with the educational experience at the University during the four years of study, the instructors blamed such feelings on the lack of money from the state to conduct research and practical work. The government bureaucrats, on the other hand, were optimistic that the extension of the degree by an additional year would remedy what could have been past failures. They also felt optimistic that the hiking of the pass marks recently effected would a go a long way in turning out technocrats with the right skills and attitudes for rural work.

The documents that were analyzed told a different story. As Giroux (1988) has shown, a technocratic curriculum design has very little value for a new language of schooling which is geared towards liberation simply because such a design stops at instructional methodology based on behavioral psychological theories of learning without ever raising the question of the relationship between knowledge, power and culture. It is evident from the course outlines, research reports and final assessments that an instrumentalist design directed towards the achievement of predetermined educational objectives is dominant. Thus, the curriculum design is motivated to turn out technicians in the various options in agriculture to fulfill the numerous roles in agricultural development following the experience in the North. From the perspective of the critical paradigm, we have seen that such a design fails to turn out people from educational institutions who have a holistic understanding of farming as a way of life and the needs of social development in general especially from the perspective of the poor majorities.

Compounding this issue is the specialization accorded to the training of agricultural technocrats. From the data the dangers of specialization were outlined. Piccone (1981) raises the following concerns regarding the incompatibility between intellectual work and specialization:

> Unless one fudges the definition of intellectuals in terms of purely formal and statistical educational criteria, it is fairly clear that what modern society produces is an army of alienated, privatized, and undefined areas. This technical intelligentsia, rather than intellectuals in the traditional sense of thinkers concerned with totality, is growing by leaps and bounds to run the increasingly complex bureaucratic and industrial apparatus. Its rationality, however, is only instrumental in character, and thus suitable mainly to perform partial tasks rather than tackling substantial questions of social organization and political direction.

The fragmentation of the program into course units designed for individual options of study clearly prevents students from gaining a total understanding of the farming world as demanded by the different situations. An agricultural engineer who emerges through this program has hardly any systematic understanding of farming except that gained perhaps from intuition since the curriculum design confined them to technical aspects of study alone. What farmers have to cope with by the day is not reflected nor is any understanding of environmental protection generalized to the entire program since it is restricted to the forestry option. Even here the interest is rarely to raise questions regarding unlimited accumulation and the environmental destruction but to focus on management efficiency and control.

In looking at the final examinations as well as course unit assessments, it was quite evident that students were expected to demonstrate a mastery of specific content material in each unit in preparation for the bureaucratic positions which nearly all students said was their interest upon completion of the program. The students who wished to become rural workers mainly with grassroots-based organizations were a statistical minority but even then hoped to do so only after ""facilitating" themselves by getting the necessary capital while working for the government. One could almost guess that given the low salaries in government as dictated by the Structural Adjustment Programs, such students hope to use the bureaucratic positions to accumulate wealth through extra-legal means including corruption as many before them had done.

Thus, missing in the curriculum design and execution is any attention directed to the development of critical thinking which alone could enable the students to raise questions about society in a creative and original manner. This would require a curriculum which is designed not in an imitative way but takes into serious consideration the unique conditions of the South that are radically different from the North from where most models have been imported. An important part of the curriculum would be to sensitize students towards the historic origin of poverty and underdevelopment and to enable them to gain skills and attitudes towards working to ameliorate such conditions. As Freire (1988) and other advocates of emancipatory education have argued, the curriculum would need to move from "banking" to "conscientization" where learners such as the agricultural science students would feel empowerment to participate in structural transformation towards more just and sustainable society.

(d) Research Orientation The evidence for the research orientation in the Faculty was collected mainly through a close scrutiny of research reports and theses although quite a fair amount was also gathered in the interviews. Out of 72 undergraduate reports which were examined over one half (51) were agronomic surveys conducted in the various parts of Uganda on different themes. With questionnaires as the principal tools for data gathering, most studies focused on "progressive farmers" vis-a-vis the "laggards" who neither could read nor write as best articulated by Rogers (1983). There was not a single case where the researchers attempted to incorporate farmers in the form of participatory research as advocated by the critical paradigm. Nearly all studies were geared towards understanding the "modern sector" activities and no effort was made to understand how farmers in rural areas cope with the daily existence or to try to appreciate the difficulties that surround their efforts to produce for the world economy.

Instead report after report made reference to the farmers' "ignorance and illiteracy" and how government intervention by way of technology and education could remedy poverty. Nearly every agronomic study stressed the use fertilizers and pesticides but none mentioned the other side of the coin in which massive environmental destruction accompanies such technology developments. As seen in the previous chapters, Vincent (1982) has aptly documented the ecological problems associated with cotton in the Eastern part of Uganda once the plow was introduced. Nowhere in the studies was such the concern of the researchers. Similarly, although there were some occasional remarks on land redistribution as a solution to poverty and underdevelopment, the majority of researchers chose not to see this as critical issues that had a domineering role in bringing about effective change. And aside from that, the students generally pleaded hopelessness before the government elite who they felt could hardly make changes against their interests. Accompanying this observation was the total neglect of grassroots activities under which the grievances of the rural poor can be articulated.

The experimental studies also ignored the intricate problems which the masses faced in producing for the economy. One glaring failing of these studies was their neglect to conduct research that would be in the interests of the masses who needed to be incorporated in the problem identification at the beginning. Instead the studies were conducted mostly in Kabanyolo University Farm which, as we have reiterated before, is an artificial site which does not approximate the actual farming environment in Uganda. As a land-grant model, its applicability to the South is dubious especially due to its failure to understand farming as a performance that cannot be learnt in small plots. Its inadequacy to act as a viable learning site was corroborated by the evidence given through interviews with instructors to the effect that students quite commonly refuse to conduct practical work in the farm. Thus, the available evidence suggests that the second year of study as well as the fourth terms of each year that are assigned to practical work did not bestow any useful research skills to the students which could ultimately be used to assist rural farmers.

The twelve Master of Science theses in Agricultural Economics that were studied disregarded the social reality of the rural poor. Conducted using econometric models, these produced evidence that was out of step with the social dynamics of society but which legitimated the preconceived policies under the structural adjustment programs as reflected in national agricultural plans and strategies in Uganda. For example, cotton production was studied without paying any attention to the ongoing resistance which farmers have historically waged against its cultivation. What the studies ignore most is the social history of the economy and the manner in which its imposition has led to the pauperization of the rural masses on the one hand, while on the other, heaping wealth and privilege on a small number of the elite in control of the state.

Continuing with the research orientation, the Uganda Government in conjunction with international agencies have set up the National Agricultural Research Organization (NARO) to coordinate agricultural research done by individual research centers and institutes. The available evidence suggests that what this organization stands for has little to do with the alleviation of poverty among the poor. First of all, the organization was set up without any involvement of grassroots organizations that are commonly in touch with the masses and whose input could be counted on to provide a research strategy that could address and seek to resolve the questions of poverty and underdevelopment. This is compounded by the revelation that NARO was established to meet the needs of export-led agricultural development as outlined in the policy documents in Uganda. As Feder (1979) and Mooney (1993) argue well, organizations that are under the CGIAR cannot be expected to promote the interest of the suffering masses in the South. Any possibility to organize research that could be more responsive to the needs of and interests of the masses is subverted right from the beginning.

Thus, with NARO in place, the needs of local farmers are bound to suffer as they are relinquished to a mere footnote as the local state strives to meet the political needs of the sponsors. For Uganda the production of foods like soybean, groundnuts, maize and cassava are emphasized in the research agenda but sadly for export to feed animals in the North or to extract oilseeds through which foreign currencies may be earned by the governments. For Turshen (1989), this is one principal way in which food shortage and hunger occur in the poor societies in the South. Coupled with the devotion of large arable land to non-edible crops like coffee and tea upon which people in the North have come to depend, the capacity to produce food for domestic supply and consumption is seriously curtailed while the foreign currency earned is devoted to purchase of luxuries and weapons to protect the state.

A research strategy which is geared towards meeting the needs of the export economy cannot take care of the needs of local populations as variously stated. Among its major failings arising from its institutional character is the neglect to listen to the problems of the rural people. Yet, as George (1976) has persistently argued, the starting point for agricultural development is for the scientists to come close to listen to the farmers themselves before the development of technologies could be attempted. As the Uganda experience has so far shown, this opportunity has been lost as the selection and framing of what becomes legitimate research is removed from the realities of ordinary people and placed under the close tutelage of the external funding agencies with their own paradigm and interests underpinned by profit-maximized growth. Central to this aim is the loss of confidence which the state holds for the masses to undertake commercial agriculture and the corresponding invitation of the agribusiness which are notorious for massive exploitation of women and chidren to replace them.

(e) Women in Development The issue of women in development cannot escape the attention of any research on the social conditions in the South and yet this study of Makerere University demonstrates a serious neglect of this issue among faculty, students and governmental bureaucrats. The four studies done mainly by male students, although they focused on women, concentrated on making better the condition of women in the "modern sector" like in the extension of credit. No attention was paid to the issues and problems of marginalization experienced by women in rural poverty. In general the researches and the data gathered through interviews were preoccupied with an analysis based on women versus men and women versus women without critically examining the marginalizing subject positionings which are the product of capitalist development. The instructors on their part were complacent with the rise in the number of women students in the Faculty but without raising any questions on the social origins of the entrants or, as Schecter (1989) has useful done, examining the nature of the economy to see whether there are any corresponding changes to accommodate women. Nobody attempted to closely scrutinize the "benevolence" towards women by the NRM in terms of what has so far been done for the rural women and their families and how the government hopes to deliver goods to the people when IMF has compelled them to cut drastically on social spending.

The instructors and their students also refused to see why any emphasis should be placed on women in their curriculum. This needs to be looked at from the point of view of the entire curriculum design where courses on rural development and extension which could possibly raise questions on women have been given a marginal role. Yet as Kothari (1987) has observed, without the rural masses and the urban poor the economies in the South would collapse.

> It is kept going by millions of hard-working people who must go on producing goods and services for the "system" , for if they do not, everything would collapse. The truth is that without landless laborers and sharecroppers and without the unrelieved drudgery of women and children, the rural economy would collapse, without slum and pavement dwellers the urban economy would collapse. (392)

As a program that prepares the future elite whose privileged position depends on the poverty and the drudgery of the marginalized, it is not surprising that the program of study is silent about these groups. In this regard, the women who participated in the interviews showed little empathy too for rural poor women. Even the Visitation Committee report and the White Paper do not regard the issues pertaining to women with any significant attention. Where occasional remarks are made about this issue, the analysis is often superficial and confined to simply widening access without ever questioning how the school curriculum itself reinforces the oppression that is inherent in the social order.

As seen in the documents, the remedy proposed by the World Bank to improve the condition of women was couched in the modernistic logic of incorporating them into the "modern sector" through the extension of education and "labor-saving devices" so that they could begin to have "leisure time" which is said to be currently undermined by patriarchy. The documents shy away from the political economy of sexual division of labor which could expose the oppression meted out to women and children throughout the South. No mention is made on how the "fetishism of commodities" has manipulated the pre capitalist modes to entrench patriarchy in new forms. Instead, students and instructors too falsely attributed the deprivation of women to indigenous cultures which prevent land ownership. The evolution of the current land tenurial practices is never investigated.

Overall, the interview findings and the documents made erroneous diagnosis leading to irrelevant prescriptions which are bound to increase the drudgery of women and children. Similarly, the findings in the final examination assessments showed little concern for issues of women in development, instead being preoccupied with the technical aspects of agricultural development and the preparation of students to work in the bureaucracies. In sum, the vast majority of women who bear the brunt of agricultural production to meet the mounting debt burden imposed on the South through structural adjustment programs received on minor attention in the entire agricultural science program at Makerere University.

(d) National and International Forces The study also clarified the impact of significant national and international forces on the agricultural education program at Makerere University. As seen through the externally-sponsored MFAD graduate program in agricultural science, there is a dependency on modernization perspectives in research output. Consequently, the agricultural scientists who will go on to fill high-level professional, academic or bureaucratic positions are more likely to design policies and plans for rural development in the modernization paradigm. Furthermore, the national frameworks for rural and agricultural development sends strong signals to the academic and research community that prioritize export-oriented and commercialized agriculture while depreciating the role of indigenous knowledge and practices as well as the empowerment and participation of the poor rural majorities. The national research system established with substantive dependency on global, North-dominated aid and expertise, cannot but push Ugandan agricultural research activities into a modernization mould. Finally, at the level of institutional policies and directions, there is a significant tendency for higher education authorities or expert advisers to favor a technocratic orientation to professional training including that of agricultural scientists. On content as well as pedagogy successive policy documents on Makerere University failed to pose the need for critical reorientation which would link academic studies with societal transformation based on equity, grassroots participation and sustainability.

7. 2 Implications for Makerere University

Based on the findings from this critical analysis of the agricultural program at Makerere University, it is possible to draw some implications for institutional and academic transformation more consistently with a people-centered paradigm of development that closely links the University with communities. Following a grassroots approach to development, universities such as Makerere play a leading role in the production and dissemination of relevant knowledge for national development. If only university communities can make dialogical and participatory contact with the lives of the poor majorities and develop values that emphasize compassion and overcome the tyranny imposed on us by the logic of material possession, the chance for a just and peaceful world could be availed. Central to this new understanding is the need for students, instructors, and administrators to reorient their habits of thought and action towards a new appreciation of social reality and creatively emerge with new methods of applying their knowledge. As George (1993) has repeatedly suggested, by learning to listen to the messages coming from the grassroots, it may be possible for each one of us to find original ways of responding to the messages quite differently from what we have been accustomed to in the past. Some of the possible suggestions within this philosophy are outlined below.

(a) Establish a Faculty of Rural Extension and Development

As a result of the foreign models of educational development in the South one commonly finds no direct linkage between the university and the community at the faculty level. Yet to overcome the isolation of the university education from the communities which they purport to serve, it would be essential to create effective links through which all training programs are brought closer to the rural masses. The point is to involve all faculties and schools in each university to work in a single faculty that would coordinate practical studies with the rural communities with a view to equip students and their instructors with first hand knowledge on rural living and development.

In such a faculty of rural extension and development, students in various programs could be brought closer to the farmers in order to acquire a working knowledge of the social problems which universities claim to address. Upon admission to the university all students would need to be attached to a related activity to the proposed field of study from the first year in an organized and systematic way. For agricultural students, they stand to benefit from the rich indigenous knowledge skills which farmers possess and which is omitted in the training at Makerere University in the current circumstances. And besides, the life experience in rural areas usefully spent on production should imbue students with an understanding of farmers and their lives upon which the university agricultural program could build. This is important when considered against the persistent complaints made by students and instructors alike over the refusal of farmers to adopt their innovations. Such misguided assessments of the farmers arises from a lack of practical understanding of the intricate and often difficult realities which masses have to contend with each farming season.

Other professional schools like Medicine could benefit in the same way. It would be useful to immerse students into the social conditions of rural and slum living so that they gain practical understanding of the actual conditions in which farmers live. This should wipe out the elitist approach of the medical schools fashioned along North industrialized models where the driving force is to train specialists particular fields of study rather than people with a holistic general understanding of health problems. In order to enrich the training, some progressive NGOs, for example, that are deeply involved in the work of rural people could be identified to assist in the training of the students. There is no better way of helping students gain skills and proper attitudes towards people than by having them interact together. As the program in agriculture stands at the moment, it cannot be expected to produce anyone after four-year period who has a deep understanding of farming or can communicate farming skills effectively to any farmers nor can the program be expected to produce a doctor who is conscientized to serve the basic health needs of all members of society.

Thus, a Faculty of Rural Extension and Development could be made up the departments of Agricultural Education and Extension, Adult Literacy, Rural Recreation and Dance, Rural Health, Engineering and Sanitation and Rural Research and Dissemination. The point is to include every aspect of study at the university in rural work which would also mean linking all schools and faculties with this proposed faculty. Faculties such as Medicine which previously have known no teaching in rural areas need to creatively build programs designed with the assistance of local people and groups. Students who may spend one year working with herbalists are bound to accumulate useful knowledge about the basic health needs of the people as well as indigenous healing strategies for synthesis with medical science.

What happens to Kabanyolo University Farm to which students have traditionally been sent for their second year?. This University Farm could still serve a useful purpose as a trial center where students, instructors and farmers can periodically meet to conduct various experiments that arise from practical experiences in the farming situations. That is, the current approach of inventing problems as individual scientists appear to commonly do on the grounds of scientific neutrality and objectivity needs to be seriously reviewed. It would be desirable for example to study whether adoption of rabbit farming has any real advantages to the communities from the point of reducing famine and hunger. The instructors may wish to rearrange their course offerings as they like provided that it would be directed at maximizing rural experience and the acquisition of skills and attitudes that arise from it.

The students' experience in the first year outside the university could constitute the first assessment of the degree program and should be diversified to include the reports and evaluations from participating parties like the NGOs. Obviously, instructors are likely to object to this proposal but from the evidence that is available farmers have little reason to crave for the kind of assistance currently available from the instructors. There is minimal serious contact between the Faculty and the real people in rural areas. The point is that there is need to redefine our relationship with our communities in creative ways by linking the academics with the activities of NGOs and other grassroots organizations that continously toil with rural people. It is to suggest also that the technical knowledge which the instructors possess needs to be reassessed in the real farming conditions with poor farmers so that social problems will be solved and poverty mitigated. In sum, a new faculty of rural extension and development can help to produce alternative agricultural scientists who will be less likely to work according to the priorities and paradigm of the mainstream international agencies.

(b) Move from Specialist to Holistic curriculum.

Considering agricultural development under the capitalist mode, the primary emphasis is to produce for the market rather than consumption and as a result the curriculum design to accompany that drive is based on the need to produce specialists who are conversant with various aspects of technical production. On the other hand, agricultural production in the South is geared not only towards exports but also to provide food for large numbers of rural families. On this basis questions need to be raised regarding the suitability of a specialized training program like that at Makerere University. Students need a general understanding of farming and to gain skills which are useful for assisting farmers to solve local problems of development. An appropriate program of study needs to equip students with the ability not to "fix" farmers' problems but to widen the option available to farmers in order to improve their conditions. We cited the case of Agricultural Engineering as an example which demonstrates how students are denied any opportunity to study and acquire useful knowledge which could assist in the development of appropriate technology for agriculture. Such graduates need to be sensitized to the ecological issues as well in order to enable them to appreciate the need to care and protect the environment for future generations. That is, environmental education should not be confined to the forestry option as it is the case in the current curriculum but should be a special concern for the entire program.

In the proposed general curriculum, it should be possible to find room for foundation courses such as Sociology of Science which have the potential to help students realize how science develops in response to socially defined problems and be able to continue the scientific spirit without acting as imitators of North paradigms or strategies. A critical understanding of science and society gained from such studies enables students to critically analyze rather than imitate technologies developed in different social and economic contexts. Such a course of studies could be complemented with studies on agricultural indigenous knowledge which could be become part of the regular practical work in the course of the program. In many South universities such as Makerere, it is possible to make regular visits to rural farmers to gather knowledge which could be utilized in the classroom teaching by the instructors rather than waiting for money from government.

What Chinweizu (1975) said about the development of science and technology during the Biafran War in Nigeria needs to be taken seriously by our program developers in order to stop imitating the North. Science needs to be tailored to socially defined problems which confront society without modeling such definitions on previous courses taken during graduate work in foreign universities. An imposed education system dumpens the ability to raise questions about society in an imaginative and creative manner since the need to imitate also predominates the thought processes.

The possibility to develop a curriculum on ethics for all students in the universities could also be explored so that they may gain a broad understanding of the impact of corruption on the economy and particularly its link with environmental destruction through accumulated debts under the IMF. Political Economy should be able to sensitize students to a critical understanding of the intersection between politics and economics at the global level and how that relates to the poverty in the South. This is not to deny a place in the curriculum for the mainstream economics but to suggest that it needs to be taught with a view to helping students understand the inherent fallacies and contradictions which are embedded in the North paradigms of modernization.

(c) Pedagogy for Critical Literacy.

Pedagogical issues clearly need to become the concern of instructors in the agricultural program at Makerere University even though it is generally regarded as the responsibility of the School of Education and teachers colleges. As one prominent instructor summed up:

> We do not go through all these rigorous programs as you sometimes do, say teaching methods, evaluation, preparation of your lessons whatever you do, we never do these things. We just find ourselves in the classroom teaching.

The interview and the documentary evidence simply ignore issues of pedagogy yet methods of teaching not only shape attitudes held by learners but are related to the national project of liberation to which independent governments and organizations have espoused to undertake in the South.

From the above, the view held by instructor regarding teaching methods falls in the traditional instrumentalist curriculum geared towards the achievement of predetermined ends to meet the needs of the economy and society and which reduce teaching into a mechanical activity. The literacy that does not lead to critical consciousness as critical analysts have variously indicated results from this top-to-bottom curriculum design. The top-to-bottom curriculum design eschews a critical understanding of the enormous contradictions in the wider society and how educational institutions function to reproduce the unjust societal order. It is why the elites in the South are constantly in the fight for better conditions for their class without making any reference to the poverty of the masses.

In espousing critical pedagogy as a new approach to teaching across South universities, serious attention needs to be given to a critical understanding of the relationship between knowledge, culture and power and how that relationship is mediated by the schooling process but impacting differently on various students. As has been consistently argued on various subjects, educators have a duty to examine with special acuity the process of schooling in which students accommodate, contest and resist the experiences. In that process, as Mohanty (1989) adds, we need to make the pedagogical political and the political pedagogical so that citizens who are politically and culturally active could be produced to further the process of social transformation. Consequently, educators should begin to question why the curriculum is organized in the way it is and what has been excluded from such a design.

Following Freire (1988), Giroux (1988) has challenges us to look at teachers as "transformative intellectuals" with a responsibility to raise questions before students and the public regarding the messages that are carried in the hidden curriculum of the school. For him, it is important for educators to think critically on those dimensions of schooling which are masked by the pedagogical process but have a domineering influence in shaping the way learners shall view the world. In short, critical pedagogy encourages us to reject in totality the technocratic curriculum in which teachers are viewed as technicians only meant to implement and carry out the "orders" from above without raising serious questions regarding the interests which such educational institutions serve.

Implicit in the this analysis is the need to introduce political economics into the study of education in general as argued above to sensitize students and instructors to the nature of institutional oppression that affects the masses of the people. The task is to eliminate from students, instructors and administrators the highly misleading and narrow-minded view of education as a struggle for passing grades. The belief is so pervasive in the educational systems of the South to the extent that instructors have totally lost the real meaning of education as a process of human liberation. As one students in Agricultural extension admitted when pressed hard "for us, when we do this practicals, the aim is to pass the exams and when you pass exam, you feel so good". Such an education neither promoted critical literacy nor imbues students with useful skills and attitudes to take up task as cultural workers among the masses. However, governments and administrators in most societies persistently pretend to be seriously engaged in changing this dangerous attitude but without paying attention to critical methodology and what it promises for human emancipation.

A further comment in necessary on the teaching of political economics for which President Museveni (1992) has been perhaps its most passionate advocate in Uganda. It is probable that the Makerere University Visitation Committee itself was obliged to recommend the teaching of Political Economy throughout the university on the sheer weight of his influence. As a result, the Committee came up with an eclectically assembled list of topics to constitute the subject matter but without any mention of how the teaching would be executed. While President Museveni's idea is certainly a major step is challenging our institutions of higher learning to take the people seriously, I doubt whether he will succeed in achieving this objective without persuading the instructors to abandon the top-to-bottom teaching styles and embrace approaches under which dialogue and discussion could take place. Furthermore, there would be need at the same time to persuade instructors to redefine knowledge differently within that paradigm which rejects a positivistic view of objectivity and neutrality of knowledge. This is important as a step to draw the experiences of the community to become the locus of argumentation and dialogue in knowledge production. It would also mean changing attitudes towards who shall be eligible to partake in the instructional processes at institutions of higher learning throughout the South.

The new definition of knowledge implied above demands that as much as possible and where necessary attention be shifted to Participatory Action Research (PAR) that is predicated on the admission that all people are intellectuals in the Gramscian sense and therefore need to be drawn into the production of knowledge. Although there are many critics of PAR (Rahnema, 1990) and perhaps have some serious things to say, there is little doubt that as a method of study it promises a better relationship between scientists and the community and yields the best possible results for national and global development. It is deplorable that several students have been misled to perceive rural farmers as "Other" who have nothing important to contribute to development without the intervention of the scientists. What the marginalized poor understand about their condition and a farming is excluded from academic discourse at the same time as they are expected to listen to inappropriate advice from agriculturists who themselves lack any convincing understanding of the rural conditions of the poor.

It is deplorable too that university students are misinformed about the social origin and the process of knowledge and it is therefore it comes as no surprise students generally associate North peoples with wisdom and scientific progress. I recall quite well while living temporarily as a small boy with relatives in one Eastern town in Uganda witnessing what children from rural areas would deplore. The employees of the urban area were deployed one morning to cut down any crops grown on the gardens. When I asked why urban people acted irrationally by cutting down crops ready for harvest, one woman asked me to look around to see whether apart from flowers there was any white man (*muzungu*) around who planted crops. As a young person I could not persist further but consoled myself that since wisdom is said to come with white people the urban authorities could have been right. The point to underline is that useful knowledge is generated from experience and what schools defend in our context is knowledge that is based on the experience of very different people.

The question regarding recruitment to the universities as implied in earlier discussions is important here. Mazrui (1992) reportedly knows a Kiswahili specialist in the US but who cannot be given tenure because he has no formal degree. Should that woman who has a track of experience in the preparation of *Malakwang* or traditional dish of Northern Uganda, be allowed to run a workshop in the University? When Mamdani (1993) is talking about rooting the universities in African soils, this is what it would mean in practice. On a number of issues of this kind no persons with university degrees could outperform the rural masses some of whom cannot read and write. It was quite evident during the interviews that students insisted on being taken to rural areas to study farming but not the other way round. Thus, instruction at the various faculties at Makerere University could be enriched through seminars and workshops in which real people who are in constant touch with the rural reality are invited to the university o dialogue and discuss with students and instructors. It has now become extremely irritating to be told at each convocation that Makerere University is important in the life of the Uganda when it is presently reinforcing or reproducing social inequities and the North-South gaps.

(d) From Aid Dependency to International solidarity

In order to move from the "aid" syndrome to developing international links for human solidarity, agricultural science curriculum could benefit tremendously through the expertise and the funding available with progressive North-based NGOs but operating in South societies. Although at this material time hard data on such organizations is lacking, it is quite evident in the daily experience of Uganda that they are seen involved in various activities such as women's rights, environmental concerns, workers rights and chidren in marginalized societies. As organizations whose sole existence is motivated to address and resolve problems of the oppressed in society, their accumulated knowledge on such issues could be a crucial resource for an agricultural science curriculum in Uganda. In linking the micro objectives at the institutional context to wider social reality, students are likely to enrich their understanding on what the rural conditions happens to be in practice and to develop a sense of identification and solidarity with the poor majorities mostly in rural areas. In particular, the agricultural training could be greatly enriched where such NGOs are drawn to the supervision of the practicum under a form of division of labor which acknowledges the expertise of the program participants as well as the resources and time that may be available to each individual. Through a faculty of Rural Extension and Development, agricultural science students could be able to work with NGO staff according to a plan to be drawn jointly with the program instructors at the Faculty of Agriculture which all instructors and their students said had not been done due to financial constraints. Apart from educational benefits in this kind of linkage, it is also bound to be cheaper way to conduct the practicum especially if the current economic situation of South societies is taken into account. However, this is only a minor consideration but which significantly improves the relations between institutions of higher learning and the communities.

Turning the institutional linkages that are commonly concluded between North and South institutions of higher learning, there is great need for academic leaders and administrators of different categories to critically examine programs of study in the North in order to be able to sift those which correspond with the development needs of the masses. That is, collaborating institutions themselves need to become familiar with the needs of development education and select and reject offers from the North according to a well established criteria based on the educational benefits to the masses. In some cases turning down an offer greatly assists the overall development effort as compared with suspicious offer that creates brain damage on the students who ultimately are prepared to provide society with inappropriate advice. Through well thought out institutional linkages, the North-South solidarity could be enhanced for the purpose of the unceasing process of tackling the social injustices and inequities in various societies.

Finally, arising from the manipulation and misinformation conducted by the mass media regarding various issues of our reality, North-based organizations as well as different groupings in the South need to enhance their cooperation in consciousness raising on important subjects like environmental care and protection in order to ensure sustainable development for the everyone. Through exchanges between groupings in the North and South, the possibility for ubiquitous understanding of the common problems that confront humanity need to be enhanced and to be put into actions whose final outcomes serve our respective societies better. This is important partly because lack of information has been one principal way through the masses are manipulated by profit-hungry transnational corporations as well as their own governments which regard them as a real threat to their own survival. At the same time, it is extremely important to underline the possibilities for cooptation by agencies bent on maintaining the status quo as well as defective evangelic missions whose motivating power is the encourage the masses to flee from reality rather than empower them to change their own condition. By being fully aware of possibilities for co-optation, the North-South solidarity could be greatly enhanced.

7. 3 Implications for Further Research

Arising from the significant roles which institutions of higher learning play in the national development of various societies, it is necessary for further research directed to make universities more relevant to focus on aspects related to the findings in this study. There is need to tale a close look at two vital aspects in development education. First, researchers should extend this study to other programs in higher education such as medicine, science and technology or education from the perspective of development paradigms. The data which could be generated should add to the body of knowledge which already have on this subject. This is particularly important where for several decades the research on institutional practices in relation to development needs has been largely ignored in favor of studies which deal with the macro structures. Secondly, researchers should also direct their attention to understand the perceptions which the marginalized and oppressed have regarding various issues on development. The findings which could be generated from such participatory action research studies should go a long way in enabling us to make better and more effective links between knowledge production centers and the needs of the masses.

As earlier explained, resources and time did not allow this research project to bring in poor farmers affected by Ugandan agricultural policies. It would be very relevant to listen to the voices of the Ugandan rural poor who have related with Makerere agricultural science graduates or undergraduates as a further confirmation of their preference for the modernization paradigm. Last but not least, it would be consistent with the principles of empowerment and conscientization to follow up this study with students and faculty in agriculture. Through dialogue on the findings, it may be possible to initiate a process of internal reflection on the limitations of the present program and exploration of needed transformations. At the same time, through advocacy and lobbying through possible political channels, policy makers and administrators mAy be challenged to integrate crucial perspectives into the agricultural program.

7. 4 Conclusion

Since World War Two, liberal reformism on a global level under US hegemony and guidance has collapsed. This developmentalism on a world scale was not only based on false assumptions that ignored the historical realities in different societies, but it also failed to acknowledge the crisis-ridden nature of capitalism. The world capitalist system is today faced with a major contradiction in which the expansion of capital has reached its upper limit. Although liberalism as world ideology has been effective in the containment of unrest and "democratization", it appears to have exhausted itself now despite Fukuyama's celebration in the *End of History* said to mark the end of socialism and the unchallenged triumph of capitalism. Our main point is that the capitalist system is faced with critical problems on a global scale that appear to threaten the future of human existence.

The collapse of the state communism in the East presents the world with the problem of global restructuring that is currently underway but which is intimately tied with the struggle for democracy and justice. In the South, the masses have lost confidence in the state as an engine for development and as a protector of their interests. In almost each society the state has become a predator which has become increasingly repressive and adamant towards the expressed needs of the masses. As Chomsky (1993) and Mazrui (1986) indicate, the "kleptocracies" such as Zaire have joined hands with the North-led capitalist interests to loot local wealth and at the same time to impose harsh regimes of maldevelopment and underdevelopment on the masses. In that context, the masses have ceased to view the state as the locus of social change and progress but instead have often joined hands with rebel groups which successfully have challenged the governments in power as was accomplished by the NRM in Uganda and more recently the Rwanda Patriotic Front (RPF). Thus, widespread violence and persistent conflict in Africa in particular have become the new "lifestyle" of the masses conducted at an unimaginable cost.

A set of factors appear to have undermined the Wilsonian liberal model of development in the South. The first of these was the unwillingness on the part of the ruling elite to make sacrifices that were chanted at every political rally by the leaders at independence. Educated in the colonial school, the ruling elite were prepared to be the "modernisers" of the rest of society largely through their possession of "modern" attitudes and "skills" vis-a-vis the "savage customs" and the "child like" ways of the rest of society. The liberal bourgeois "democratic" assumptions on which they based development have not worked as the educated themselves turned into wolves clothed in foreign attire. One may not be far from the truth in asserting that the colonial and succeeding neo-colonial education systems have performed extremely well in creating an elite who have been willing to turn on their people and the resources with equal or even greater severity and violence than the colonial master.

Compounding this lack of empathy for the masses was the need to sustain the newly-acquired consumption lifestyles following North-oriented consumerism which has been given a boost through the media propaganda in the South itself. It would appear that the ruling groups have proved their "modernity" through uncritical appreciation of North-oriented lifestyles of marriage and family life, consumption of imported beers, club life, music and the like. Unfortunately, it is the foreign earnings from agricultural production that are channeled to consumer goods and arms which are necessary to maintain the ruling groups in power. States have in fact been rendered impotent through the demands of structural adjustment programs with regard to provision of social services even where there was a commitment to do so. The elites are not victims but beneficiaries of the modernization programs since any devaluation of the local currency makes them richer abroad.

Another set of factors which have undermined the state as source of assistance for the masses has been the drive by the ruling elite to develop a strong state apparatus. This has meant increased expenditure in military supplies and hardware at the expense of services such as health and education. The state has found this to be extremely important since it lacks any legitimacy from the masses who refuse to be amused by the lifestyles of their rulers. As Inhovbere (1994) persuasively argues, the state elites have manipulated public consciousness through a systematic application of reactionary ideologies like in the issue of "tribalism" in order to prevent a correct analysis of the social conditions to emerge. While this Ethnic Industry has enriched the elite, it has at the same time led to "inter-tribal" conflicts which in many cases have escalated into wholesale massacres as the recent Rwandan experience shows. Simultaneously, the state has become weary of any form of criticism like from Ngugi Wa Thiongo who is currently being punished as an academic refuge for attempting to improve the social conditions of the masses in Kenya.

It was with full awareness of the above reflection and the global realities of uneven development that this study of agricultural education program at one African university was conceived. What this focused analysis of a particular area of tertiary education in Uganda has accomplished is to demonstrate how micro and institutional practices rooted in philosophical assumptions, goals, curriculum, pedagogy and research can be and indeed is in Makerere's case substantially related to macro contexts of international and national development. Most importantly, the study shows how a generation of professionals in the crucial field of agricultural development through their present socialization in academic knowledge, skills and values, will be well prepared to reproduce the dominant paradigm of modernization in Uganda. Armed with knowledge, attitudes and skills which are not geared to demonstrate empathy, compassion and solidarity with suffering masses, the agricultural science professionals will add rather than mitigate poverty and underdevelopment in South contexts. This cycle of intellectual and hence societal reproduction can, however, be broken with political will and educational imagination. Hopefully this study has provided some understanding to initiate this vision of transformation.

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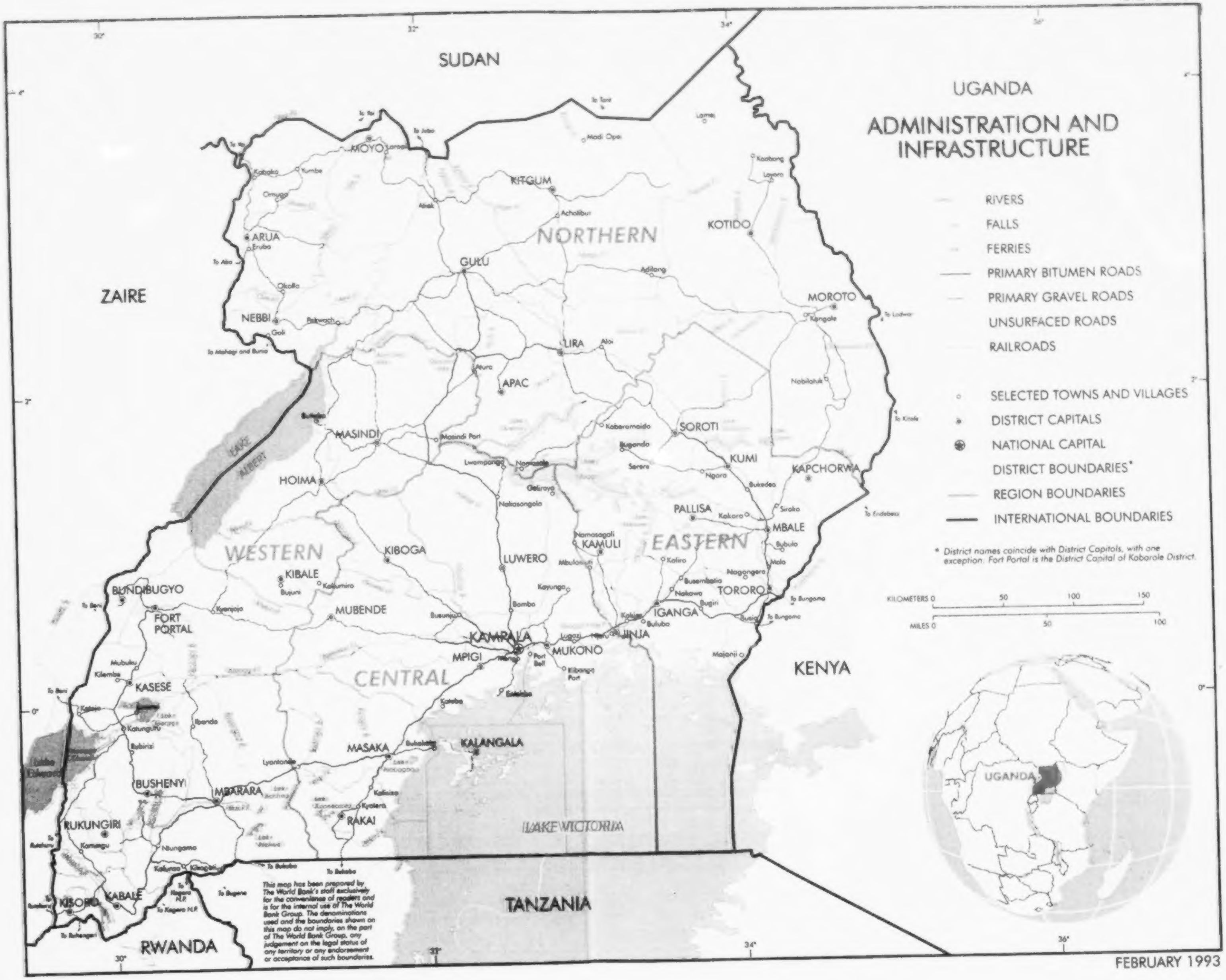
IBRD 24187



UGANDA

ADMINISTRATION AND INFRASTRUCTURE

—	RIVERS
—	FALLS
—	FERRIES
—	PRIMARY BITUMEN ROADS
—	PRIMARY GRAVEL ROADS
—	UNSURFACED ROADS
—	RAILROADS
○	SELECTED TOWNS AND VILLAGES
●	DISTRICT CAPITALS
⊛	NATIONAL CAPITAL
	DISTRICT BOUNDARIES*
—	REGION BOUNDARIES
—	INTERNATIONAL BOUNDARIES

* District names coincide with District Capitals, with one exception: Fort Portal is the District Capital of Kabarole District.

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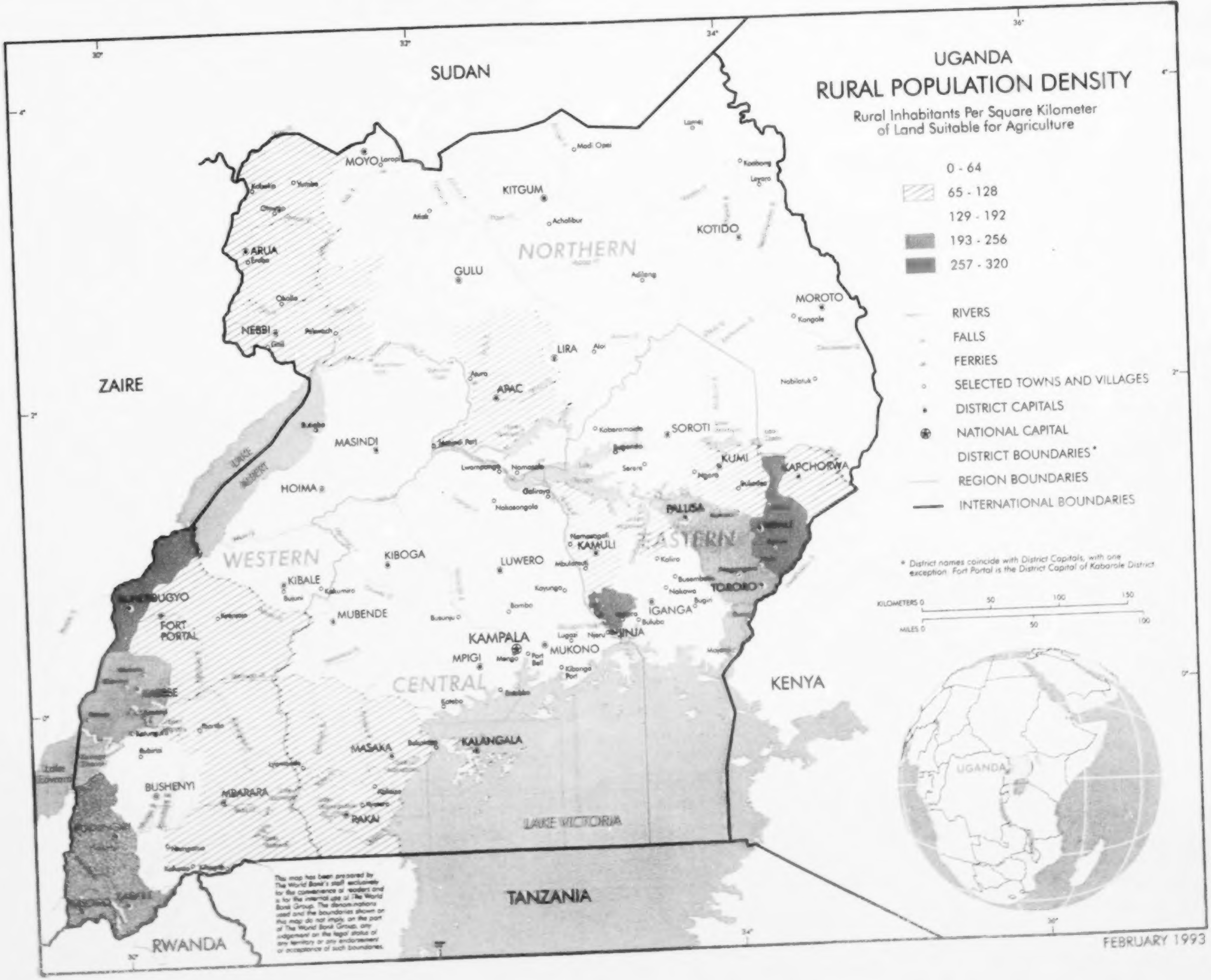
FEBRUARY 1993

SUDAN
ZAIRE
KENYA
TANZANIA
RWANDA
NORTHERN
EASTERN
WESTERN
CENTRAL
LAKE VICTORIA
LAKE ALBERT
UGANDA
MOYO
ARUA
NEBBI
GULU
KITGUM
KOTIDO
MOROTO
LIRA
APAC
SOROTI
KUMI
KAPCHORWA
MBALE
PALLISA
TORORO
IGANGA
JINJA
KAMULI
MUKONO
KAMPALA
MPIGI
LUWERO
KIBOGA
MASINDI
HOIMA
KIBALE
MUBENDE
BUNDIBUGYO
FORT PORTAL
KASESE
BUSHENYI
MBARARA
RUKUNGIRI
KISORO
KABALE
MASAKA
RAKAI
KALANGALA
KILOMETERS 0 50 100 150
MILES 0 50 100
30°
32°
34°
36°
4°
2°
0°



UGANDA
RURAL POPULATION DENSITY

Rural Inhabitants Per Square Kilometer of Land Suitable for Agriculture

0 - 64
▨ 65 - 128
129 - 192
193 - 256
257 - 320
RIVERS
FALLS
FERRIES
○ SELECTED TOWNS AND VILLAGES
• DISTRICT CAPITALS
⊛ NATIONAL CAPITAL
DISTRICT BOUNDARIES*
REGION BOUNDARIES
INTERNATIONAL BOUNDARIES
KILOMETERS 0 50 100 150
MILES 0 50 100
SUDAN
ZAIRE
KENYA
TANZANIA
RWANDA
NORTHERN
EASTERN
CENTRAL
WESTERN
MOYO
ARUA
NEBBI
KITGUM
GULU
KOTIDO
MOROTO
LIRA
APAC
SOROTI
KUMI
KAPCHORWA
PALLISA
TORORO
IGANGA
JINJA
KAMULI
LUWERO
MUKONO
KAMPALA
MPIGI
KALANGALA
MASINDI
HOIMA
KIBOGA
KIBALE
MUBENDE
BUNDIBUGYO
FORT PORTAL
MASAKA
RAKAI
MBARARA
BUSHENYI
LAKE VICTORIA
LAKE ALBERT
UGANDA
30°
32°
34°
36°
4°
2°
0°

* District names coincide with District Capitals, with one exception. Fort Portal is the District Capital of Kabarole District.

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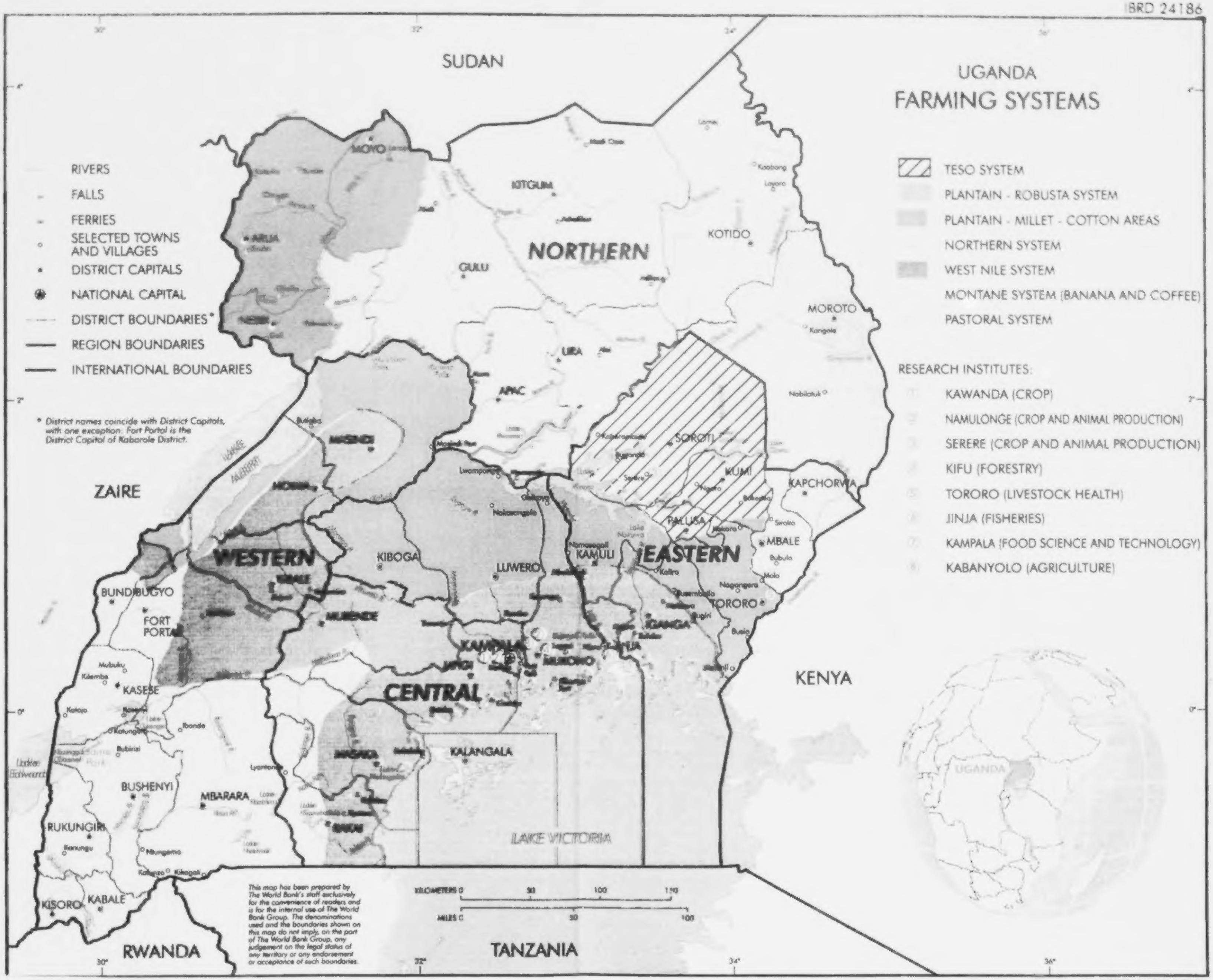
IBRD 24185

FEBRUARY 1993

IBRD 24186

UGANDA
FARMING SYSTEMS


▨ TESO SYSTEM
PLANTAIN - ROBUSTA SYSTEM
PLANTAIN - MILLET - COTTON AREAS
NORTHERN SYSTEM
WEST NILE SYSTEM
MONTANE SYSTEM (BANANA AND COFFEE)
PASTORAL SYSTEM
RESEARCH INSTITUTES:
① KAWANDA (CROP)
② NAMULONGE (CROP AND ANIMAL PRODUCTION)
③ SERERE (CROP AND ANIMAL PRODUCTION)
④ KIFU (FORESTRY)
⑤ TORORO (LIVESTOCK HEALTH)
⑥ JINJA (FISHERIES)
⑦ KAMPALA (FOOD SCIENCE AND TECHNOLOGY)
⑧ KABANYOLO (AGRICULTURE)
RIVERS
FALLS
FERRIES
SELECTED TOWNS AND VILLAGES
DISTRICT CAPITALS
NATIONAL CAPITAL
DISTRICT BOUNDARIES*
REGION BOUNDARIES
INTERNATIONAL BOUNDARIES
SUDAN
ZAIRE
KENYA
TANZANIA
RWANDA
NORTHERN
WESTERN
CENTRAL
EASTERN
MOYO
ARUA
NEBBI
KITGUM
GULU
KOTIDO
MOROTO
LIRA
APAC
SOROTI
KUMI
KAPCHORWA
PALLISA
MBALE
TORORO
IGANGA
JINJA
KAMULI
MUKONO
KAMPALA
MPIGI
LUWERO
KIBOGA
MASINDI
HOIMA
KABALE
MUBENDE
MASAKA
RAKAI
KALANGALA
BUNDIBUGYO
FORT PORTAL
KASESE
BUSHENYI
MBARARA
RUKUNGIRI
KISORO
Lake Victoria
Lake Albert
Lake Edward
Lake Kyoga
KILOMETERS 0 50 100 150
MILES 0 50 100
30°
32°
34°
36°
4°
2°
0°
UGANDA

* District names coincide with District Capitals, with one exception: Fort Portal is the District Capital of Kabarole District.

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FEBRUARY 1993

GROWTH RATES AND SEX RATIOS BY REGION AND DISTRICT: 1969, 1980 AND 1991 CENSUSES

REGION & DISTRICT	TOTAL POPULATION ('000)			GROWTH RATES		SEX RATIOS		
	1969	1980	1991	1969-1980	1980-1991	1969	1980	1991
CENTRAL								
KALANGALA	6.8	8.6	16.4	2.2	5.9	170.3	144.8	154.1
KAMPALA	330.7	458.5	774.2	3.1	4.8	123.7	102.6	95.0
KIBOGA	75.7	138.7	141.6	5.8	0.2	119.8	110.2	105.0
LUWERO	315.2	412.5	449.7	2.6	0.8	109.0	103.3	99.6
MASAKA	451.2	622.6	838.7	3.1	2.7	110.0	101.1	98.2
MPIGI	513.5	661.2	913.9	2.4	2.9	110.3	103.3	99.5
MUBENDE	255.3	371.6	501.0	3.6	2.7	116.8	110.1	102.9
MUKONO	541.0	634.3	824.6	1.5	2.4	117.2	104.7	100.6
RAKAI	182.6	274.6	383.5	3.9	3.0	103.6	98.5	97.3
TOTAL	2,672.0	3,582.4	4,843.6	2.8	2.7	113.6	103.7	99.2
EASTERN								
IGANGA	470.2	643.9	945.8	3.0	3.5	100.5	96.3	95.1
JINJA	196.3	228.5	289.5	1.5	2.1	118.4	106.8	98.1
KAMULI	278.3	349.5	485.2	2.2	3.0	100.5	98.2	95.9
KAPCHORWA	64.5	74.0	116.7	1.3	4.1	102.3	104.8	100.8
KUMI	190.7	239.5	236.7	2.2	-0.1	91.1	91.3	90.9
MBALE	421.4	556.9	711.0	2.7	2.2	102.2	99.6	100.2
PALLISA	202.2	261.2	357.7	2.5	2.9	96.0	94.2	94.6
SOROTI	379.9	476.6	430.4	2.2	-0.9	94.8	94.3	94.9
TORORO	324.9	407.2	555.6	2.2	2.8	97.4	95.4	96.8
TOTAL	2,528.4	3,237.4	4,128.5	2.4	2.2	99.7	97.0	96.3
NORTHERN								
APAC	225.4	313.3	454.5	3.2	3.4	98.9	97.5	96.2
ARUA	369.6	472.3	637.9	2.4	2.7	93.6	92.4	93.2
GULU	223.7	270.1	338.4	1.8	2.1	99.1	94.7	96.6
KITGUM	240.1	308.7	357.2	2.4	1.3	96.1	94.9	93.5
KOTIDO	105.6	161.4	196.0	4.1	1.8	91.8	92.8	89.3
LIRA	278.9	370.3	501.0	2.7	2.7	98.6	97.8	97.7
MOROTO	164.7	188.6	174.4	1.3	-0.7	98.2	89.7	84.8
MOYO	90.0	106.5	175.6	1.6	4.5	95.9	97.4	93.9
NEBBI	204.1	233.0	316.9	1.3	2.8	93.7	91.9	92.3
TOTAL	1,902.2	2,424.2	3,152.0	2.3	2.4	96.3	94.4	93.9
WESTERN								
BUNDIBUGYO	79.4	112.2	116.6	3.3	0.3	99.1	101.7	98.4
BUSHENYI	410.7	524.7	736.4	2.4	3.1	91.0	91.3	92.8
HOIMA	112.7	142.2	197.9	2.2	3.0	108.9	103.0	101.3
KABALE	288.6	328.8	417.2	1.3	2.2	84.7	89.1	90.1
KABAROLE	328.0	519.8	746.8	4.4	3.3	105.0	99.4	98.1
KASESE	164.1	277.7	343.6	5.1	1.9	116.6	104.9	95.3
KIBAALE	83.7	152.1	220.3	5.7	3.4	105.0	101.0	99.3
KISORO	114.8	126.7	186.7	0.9	3.5	81.1	82.6	86.2
MASINDI	155.5	223.2	260.8	3.5	1.4	110.8	106.4	102.4
MBARARA	450.5	688.2	930.8	4.1	2.7	94.9	96.3	97.0
RUKUNGIRI	244.6	296.6	390.8	1.9	2.5	91.8	93.1	92.6
TOTAL	2,432.6	3,392.1	4,547.7	3.2	2.7	96.6	96.4	95.5
UGANDA	9,535.1	12,636.2	16,671.7	2.7	2.5	101.9	98.2	96.5

NOTES: When district boundaries have been changed 1969 and 1980 census figures have been adjusted to 1991 boundaries. Hence these totals do not agree with those given in earlier censuses.

MAKERERE UNIVERSITY: FILLED AND VACANT POSTS, PROFESSIONAL AND OTHER RELATED TEACHING, TEACHING PERSONNEL BY FACULTY/COURSE.

FACULTY/DEPARTMENT	As at Dec. 1990			As at Dec. 1991			As at Dec. 1992		
	Filled	Vacant	Total	Filled	Vacant	Total	Filled	Vacant	Total
Agriculture and Forestry	62	26	88	70	35	105	82	29	111
Arts	61	34	95	98	39	137	89	36	125
Commerce	9	9	18	14	8	22	21	19	40
Law	15	9	24	24	9	33	29	8	37
Medicine	96	74	170	111	77	188	128	78	206
Education	47	21	68	69	19	88	70	15	85
Science	82	43	125	114	53	167	124	45	169
Social Sciences	51	25	76	89	31	120	86	30	116
Technology	41	37	78	58	42	100	73	34	107
Veterinary Medicine	34	29	63	54	30	84	62	33	95
Centre for continuing Education	14	8	22	23	4	27	25	4	29
East African School of Librarianship	4	3	7	12	3	15	5	3	8
Institute of Statistics and Applied Economics	7	24	31	33	11	44	38	21	59
Fine Art	8	5	13	13	5	18	14	3	17
Total	531	347	878	782	366	1148	846	358	1204

SOURCE: Makerere University.

APPENDIX B 2: AGRICULTURE STUDENTS' INFORMATION

REG. #	COUNTRY OF ORIGIN	DISTRICT OF ORIGIN	GENDER	** PREVIOUS SCHOOL ATTENDED
89/219	UGANDA	NA/2	(M)	NA/4
89/197	UGANDA	NA/2	(M)	NA/4
89/249	TANZANIA	NA/2	(M)	NA/4
89/272	UGANDA	MBALE	(M)	NA/4
89/195	UGANDA	APAC	(M)	BOROBORO
89/269	UGANDA	TORORO	(M)	BUDO
89/274	UGANDA	MASAKA	(F)	BUDO
89/436	UGANDA	TORORO	(M)	BUDO
89/268	UGANDA	IGANGA	(M)	BUKOYO
89/258	UGANDA	BUSHENYI	(M)	BWE'NYANGE
89/271	UGANDA	MASAKA	(M)	CALTEC
89/243	UGANDA	APAC	(M)	COMBONI
89/276	UGANDA	SOROTI	(M)	COMBONI
89/187	UGANDA	TORORO	(F)	GAYAZA
89/201	UGANDA	BUNDIBUGYO	(M)	GOMBE SS
89/203	UGANDA	BUSHENYI	(M)	IBANDA SS
89/277	UGANDA	KUMI	(M)	IBANDA SS
89/211	UGANDA	JINJA	(M)	JINJA SS
89/262	UGANDA	MBALE	(M)	KAKIRA
89/216	UGANDA	JINJA	(M)	KAMPALA HS
89/222	UGANDA	KAMULI	(M)	KAMPALA HS
89/238	UGANDA	KAMPALA	(M)	KAMPALA HS
89/265	UGANDA	KABAROLE	(M)	KAMPALA HS
89/215	TANZANIA	DODOMA	(M)	KIBAHA
89/237	UGANDA	IGANGA	(F)	KIBULI SS
89/251	UGANDA	JINJA	(M)	KIBULI SS
89/260	UGANDA	BUSIA	(M)	KIBULI SS
89/278	UGANDA	IGANGA	(M)	KIBULI SS
89/256	UGANDA	KAMPALA	(M)	KISUBI
89/277	UGANDA	MPIGI	(M)	KITANTE HS
89/266	UGANDA	MASINDI	(M)	KOLOLO SS
89/192	UGANDA	MBARARA	(M)	KOLOLO SS
89/210	UGANDA	KAMPALA	(M)	KOLOLO SS
89/193	UGANDA	LIRA	(M)	KYAMBOGO
89/245	UGANDA	LIRA	(M)	LANGO COLL
89/205	UGANDA	MPIGI	(M)	LUBIRI SS
89/218	UGANDA	MASAKA	(F)	LUBIRI SS
89/234	UGANDA	MASAKA	(F)	LUBIRI SS
89/226	UGANDA	MBALE	(M)	MAKERERE
89/230	UGANDA	MBALE	(M)	MAKERERE
89/244	UGANDA	KITGUM	(M)	MAKERERE
89/250	UGANDA	MBARARA	(M)	MAKERERE
89/270	UGANDA	MASINDI	(M)	MAKERERE
89/207	UGANDA	IGANGA	(M)	MAKERERE
89/253	UGANDA	LUWERO	(M)	MAKERERE
89/241	UGANDA	TORORO	(M)	MANJASI

89/246	UGANDA	TORORO	(M)	MANJASI
89/185	UGANDA	KUMI	(F)	MATURE
89/202	UGANDA	MBARARA	(M)	MATURE
89/217	UGANDA	MBALE	(M)	MATURE
89/252	UGANDA	RUKUNGIRI	(M)	MATURE
89/191	UGANDA	KABALE	(M)	MBARARA HS
89/239	UGANDA	MBARARA	(M)	MBARARA HS
89/209	UGANDA	MPIGI	(F)	MENGO SS
89/212	UGANDA	MUKONO	(M)	MENGO SS
89/188	UGANDA	KABALE	(M)	MUTOLERE
89/194	UGANDA	ARUA	(M)	MVARA SS
89/221	UGANDA	KAMULI	(M)	MWIRI
89/224	UGANDA	KABALE	(M)	MWIRI
89/242	UGANDA	TORORO	(M)	MWIRI
89/229	UGANDA	KAMPALA	(F)	NABISUNSA
89/233	UGANDA	MPIGI	(F)	NABISUNSA
89/223	UGANDA	JINJA	(F)	NAMAGUNGA
89/225	UGANDA	KAMULI	(F)	NAMAGUNGA
89/236	UGANDA	JINJA	(F)	NAMANGUGA
89/273	UGANDA	LUWERO	(F)	NAMAGUNGA
89/115	UGANDA	MPIGI	(M)	NAMASAGALI
89/200	UGANDA	KAMULI	(M)	NAMASAGALI
89/213	UGANDA	MUKONO	(M)	NAMASAGALI
89/232	UGANDA	JINJA	(F)	NAMASAGALI
89/220	UGANDA	KAMPALA	(M)	NAMILYANGO
89/267	UGANDA	SOROTI	(M)	NAMILYANGO
89/1743*	UGANDA	MASAKA	(M)	NAMILYANGO
89/240	UGANDA	SOROTI	(M)	NAMILYANGO
89/190	UGANDA	MBARARA	(M)	NTARE
89/259	UGANDA	NEBBI	(M)	NYAPEA
89/198	TANZANIA	NA/2	(M)	NZUMBE
89/204	UGANDA	MPIGI	(M)	ST JAMES' SCH
89/248	TANZANIA	CHITUNGWIZA	(F)	ST DAVID'S
89/206	UGANDA	MPIGI	(M)	ST JAMES'
89/208	UGANDA	KABALE	(M)	ST JAMES' SCH
89/247	UGANDA	TORORO	(M)	ST JAMES' SCH
89/275	UGANDA	KUMI	(M)	ST JAMES' SCH
89/255	UGANDA	RUKUNGIRI	(M)	ST PAUL SEM.
89/257	UGANDA	RUKUNGIRI	(M)	ST PAUL SEM
89/196	TANZANIA	NA/2	(M)	TABORA
89/261	UGANDA	TORORO	(M)	TORORO COLL
89/263	UGANDA	MBALE	(M)	TORORO COLL
89/264	UGANDA	APAC	(M)	TORORO COLL
89/186	UGANDA	KUMI	(F)	TORORO GS
89/228	UGANDA	JINJA	(F)	TORORO GS
89/235	UGANDA	IGANGA	(F)	TORORO GS
89/254	UGANDA	KAMULI	(F)	TORORO GS
89/214	UGANDA	IGANGA	(M)	WAIRAKA

Source: Makerere University

APPENDIX B 3: FORESTRY STUDENTS' INFORMATION

REG. #	COUNTRY OF ORIGIN	DISTRICT OF ORIGIN	GENDER	*SCHOOL PREVIOUSLY ATTENDED
89/1497	UGANDA	(NA/2)	(M)	(NA/4)
89/291	UGANDA	(NA/2)	(M)	(NA/4)
89/298	UGANDA	(NA/2)	(F)	(NA/4)
89/304	UGANDA	APAC	(M)	BOROBORO
89/301	UGANDA	IGANGA	(M)	BUKOYO
89/1443	UGANDA	MUKONO	(M)	CITY HIGH
89/279	UGANDA	TORORO	(M)	IGANGA
89/300	UGANDA	TORORO	(F)	IGANGA SS
89/1580	UGANDA	JINJA	(M)	JINJA COLL
89/296	UGANDA	JINJA	(M)	JINJA SS
89/1629	UGANDA	TORORO	(M)	KACHONGA
89/282	UGANDA	MUKONO	(M)	KASAWO
89/306	UGANDA	LUWERO	(M)	KISUBI
89/286	UGANDA	ARUA	(M)	KITANTE
89/292	UGANDA	KABAROLE	(M)	KYEGOBE
89/295	UGANDA	MBARARA	(M)	MBARARA HS
89/0000*	UGANDA	MBARARA	(M)	MBARARA HS
89/1577	UGANDA	KITGUM	(M)	MWIRI
89/290	UGANDA	IGANGA	(M)	MWIRI
89/293	UGANDA	KABAROLE	(M)	NTARE
89/303	UGANDA	NEBBI	(M)	NYAPEA
89/305	UGANDA	NEBBI	(M)	NYAPEA
89/289	UGANDA	IGANGA	(M)	OLD KAMPALA
89/294	UGANDA	KAMPALA	(M)	OLD KAMPALA
89/284	UGANDA	KASESE	(M)	SAAD SS
89/281	UGANDA	KABAROLE	(M)	SIR TITO WINY
89/299	UGANDA	TORORO	(F)	TORORO GIRLS
89/288	UGANDA	LUWERO	(M)	WAMPEWO SS

Source: Makerere University

APPENDIX B 4

ADMISSION WEIGHTS AT ADVANCED LEVEL SUBJECTS FOR AGRICULTURAL SCIENCE PROGRAM

SUBJECT	BSC AGRIC	BSC FOR	BSC FOOD SCI & TECH	B. AGRIC ENG
BIOLOGY	3	3	3	1
CHEMISTRY	3	3	3	2
PHYSICS	2	2	2	3
MATHS	1	1	1	3
AGRIC	2	2	1	1
FOOD AND NUTRITION	1	-	2	-
GEOGRAPHY	1	1	1	-
HOME ECONOMICS	1	1	1	1

Source: Faculty Handbook

APPENDIX B 5: ENGINEERING STUDENTS' INFORMATION

REG#	COUNTRY OF ORIGIN	DISTRICT OF ORIGIN	GENDER	** SCHOOL PREVIOUSLY ATTENDED
89/184	UGANDA	(NA/2)	(M)	(NA/4)
89/147	UGANDA	KAMULI	(M)	BUDO
89/149	UGANDA	MASINDI	(M)	BUDO
89/151	UGANDA	KAMPALA	(M)	BUDO
89/153	UGANDA	MUKONO	(M)	BUDO
89/159	UGANDA	TORORO	(M)	BUDO
89/168	UGANDA	KUMI	(M)	BUDO
89/175	UGANDA	KAMPALA	(M)	BUDO
89/318	UGANDA	KAPCHORWA	(M)	BUDO
89/165	UGANDA	MBARARA	(M)	CALTEC ACAD.
89/1484	UGANDA	KABALE	(M)	CALTEC ACAD.
89/150	UGANDA	MBARARA	(F)	GAYAZA
89/141	UGANDA	KABALE	(M)	KIGEZI HS
89/146	UGANDA	KABALE	(M)	KIGEZI HS
89/148	UGANDA	MPIGI	(M)	KISUBI
89/154	UGANDA	KAMPALA	(M)	KISUBI
89/156	UGANDA	KAMPALA	(M)	KISUBI
89/163	UGANDA	RUKUNGIRI	(M)	KISUBI
89/169	UGANDA	NEBBI	(M)	KISUBI
89/176	UGANDA	KAMPALA	(M)	KISUBI
89/796	UGANDA	ARUA	(M)	KISUBI
89/160	UGANDA	BUSHENYI	(M)	KYEGOBE
89/180	UGANDA	KABALE	(M)	KYEGOBE
89/181	UGANDA	KABALE	(M)	KYEGOBE
89/155	UGANDA	MASAKA	(M)	MAKERERE
89/164	UGANDA	KABALE	(M)	MAKERERE
89/182	UGANDA	BUSHENYI	(M)	MAKERERE
89/144	UGANDA	MASINDI	(M)	MATURE
89/177	UGANDA	MUBENDE	(M)	MATURE
89/145	BANGLADESH	MAOGON	(F)	MBALE SS
89/167	UGANDA	MBARARA	(M)	MBARARA HS
89/179	UGANDA	BUSHENYI	(M)	MBARARA HS
89/140	UGANDA	ARUA	(M)	MVARA
89/173	UGANDA	MPIGI	(M)	MWIRI
89/152	UGANDA	KABAROLE		NAMILYANGO
89/162	UGANDA	KAMPALA	(M)	NAMILYANGO
89/157	UGANDA	KABAROLE	(M)	NTARE
89/166	UGANDA	RUKUNGIRI	(M)	NTARE
89/142	UGANDA	SOROTI	(M)	TESO COLLEGE
89/171	UGANDA	SOROTI	(M)	TESO COLLEGE

Source: Makerere University

APPENDIX B 6: BACHELOR OF MEDICINE AND SURGERY & DENTISTRY STUDENT INFORMATION 1989/90

STUDENT REGISTRATION	COUNTRY OF ORIGIN	DISTRICT OF ORIGIN	GENDER	SCHOOL PREVIOUSLY ATTENDED
89/07	UGANDA	ARUA	(M)	(NA4)
89/53	UGANDA	MBARARA	(M)	(NA4)
89/93	UGANDA	MPIGI	(M)	(NA4)
89/19	UGANDA	KAMPALA	(M)	BUDO
89/21	UGANDA	KAMPALA	(M)	BUDO
89/23	UGANDA	IGANGA	(M)	BUDO
89/27	UGANDA	MASAKA	(M)	BUDO
89/29	UGANDA	MBALE	(M)	BUDO
89/39	UGANDA	KABAROLE	(M)	BUDO
89/54	UGANDA	MPIGI	(M)	BUDO
89/73	UGANDA	MUKONO	(M)	BUDO
89/74	UGANDA	KAMPALA	(M)	BUDO
89/14	UGANDA	BUSHENYI	(M)	BUSHENYI HS
89/51	UGANDA	MUBENDE	(F)	CALTEC
89/98	UGANDA	KITGUM	(M)	CITY HS
89/11	UGANDA	ARUA	(F)	GAYAZA
89/37	UGANDA	LUWERO	(F)	GAYAZA
89/41	UGANDA	KAMPALA	(F)	GAYAZA
89/47	UGANDA	IGANGA	(F)	GAYAZA
89/50	UGANDA	LUWERO	(F)	GAYAZA
89/70	UGANDA	IGANGA	(F)	GAYAZA
89/69	UGANDA	TORORO	(M)	JINJA COLLEGE
89/95	UGANDA	IGANGA	(M)	JINJA SS
89/46	UGANDA	TORORO	(F)	KAMPALA HS
89/56	UGANDA	NEBBI	(M)	KAMPALA HS
89/92	UGANDA	MBARARA	(M)	KIBULI
89/99	UGANDA	KAMPALA	(M)	KIBULI
89/100	UGANDA	KAMPALA	(M)	KIBULI
89/13	UGANDA	MBARARA	(M)	KISUBI
89/22	UGANDA	IGANGA	(M)	KISUBI
89/20	UGANDA	SOROTI	(M)	KOLOLO SS
89/30	UGANDA	TORORO	(M)	MAKERERE CS
89/40	UGANDA	MPIGI	(M)	MAKERERE CS
89/42	UGANDA	TORORO	(M)	MAKERERE CS
89/44	UGANDA	MPIGI	(F)	MAKERERE CS
89/65	UGANDA	KAMPALA	(F)	MAKERERE CS
89/38	UGANDA	MUKONO	(M)	MAMILYANGO
89/16	UGANDA	IGANGA	(M)	MATURE
89/17	UGANDA	ARUA	(M)	MATURE
89/61	UGANDA	KUMI	(M)	MATURE
89/91	TANZANIA	IRINGA	(M)	MAZENGO
89/10	UGANDA	ARUA	(M)	MVARA
89/89	TANZANIA	KILIMANJARO	(F)	MWENGE
REG. #	**COUNTRY OF ORIGIN**	**DISTRICT OF ORIGIN**	**GENDER**	**SCHOOL PREVIOUSLY ATTENDED**
89/15	UGANDA	IGANGA	(M)	MWIRI

89/26	UGANDA	IGANGA	(M)	MWIRI
89/28	UGANDA	LUWERO	(M)	MWIRI
89/36	UGANDA	KAMULI	(M)	MWIRI
89/43	UGANDA	JINJA	(M)	MWIRI
89/57	UGANDA	APAC	(M)	MWIRI
89/94	UGANDA	RAKAI	(M)	MWIRI
89/09	UGANDA	GULU	(F)	NABBINGO
89/31	UGANDA	MASINDI	(F)	NABISUNSA
89/49	UGANDA	KAMPALA	(F)	NABISUNSA
89/52	UGANDA	MPIGI	(F)	NABISUNSA
89/97	UGANDA	MPIGI	(F)	NABISUNSA
98/08	UGANDA	KUMI	(F)	NAMAGUNGA
89/34	UGANDA	MASAKA	(F)	NAMAGUNGA
89/55	UGANDA	KUMI	(F)	NAMAGUNGA
89/59	UGANDA	MOYO	(F)	NAMAGUNGA
89/96	UGANDA	IGANGA	(F)	NAMAGUNGA
89/25	UGANDA	MUKONO	(M)	NAMILYANGO
89/45	UGANDA	KAPCHORWA	(M)	NAMILYANGO
89/12	UGANDA	KUMI	(M)	NGORA HS
89/32	UGANDA	MBARARA	(M)	NTARE
89/68	UGANDA	NEBBI	(M)	NYAPEA
89/67	UGANDA	BUSHENYI	(M)	OLD KAMPALA
89/90	TANZANIA	MOROGORO	(M)	SHINYANGA
89/35	UGANDA	SOROTI	(M)	ST JAMES JINJA
89/63	BANGALADESH	(NA2)	(M)	ST JAMES JINJA
89/71	UGANDA	IGANGA	(M)	ST JAMES JINJA
89/18	UGANDA	SOROTI	(M)	TESO COLLEGE
89/60	UGANDA	SOROTI	(M)	TESO COLLEGE
89/33	UGANDA	MOYO	(M)	TORORO COLL
89/58	UGANDA	KITGUM	(M)	TORORO COLL
89/64	UGANDA	MBARARA	(M)	TORORO COLL
89/72	UGANDA	MBALE	(M)	TORORO COLL
89/24	UGANDA	GULU	(M)	WAIRAKA
89/62	UGANDA	APAC	(M)	WAIRAKA

APPENDIX C 1

BOOK BANK FOR DEPRATMENT OF AGRICULTURAL ECONOMICS

TITLE	AUTHOR	NO
INTRODUCTION TO AGRICULTURAL ANALYSIS	C. C. BISHOP W. D. TOUSSANT	124
INVESTMENT PROJECTS IN AGRICULTURE	McDONALD P. BENJAMIN	27
AGRICULTURAL ECONOMICS AND MARKETING	J. C ABBOT J. P. MAKEHAM	27
ECONOMICS	PAUL A. SAMUELSON WILLIAM NORDHAUS	94
FARM BUSINESS MANAGEMENT	EMERY N CASTLE MANING H. BECKER A. GENE NELSON	145
MARKETING OF AGRICULTURAL PRODUCTION	RICHARD L. KOHLS JOSEPH N. UHL	64
ELEMENTS OF ECONOMETRICS	JAN KMENTA	24
ECONOMETRIC METHODS	J JOHNSON	30
ECOMONETRIC MODELS AND ECONOMIC FORECASTS	ROBERT S. PINDYCK DANIEL L RUBINFELD	9
WORLD DEVELOPMENT REPORT	WORLD BANK	14
PLANNING BETTER PROGRAMS/ADULT EDUC. ASS. PROF. DEV. SERIES	PATRICK G. BOYLE PHD	77
RURAL DEVELOPMENT: PUTTING THE LAST FIRST	ROBERT CHAMBERS	(NOT EXCEEDING 20)
BASIC ECONOMICS	B. M. TAYEBA	-
CONTEMPORARY POLICY ISSUES	-	-
UGANDA WOMEN IN DEVELOPMENT	SYED A. ABIDI	-
UGANDA YOUTH IN DEVELOPMENT	SYED A. ABIDI	-

APPENDIX C 2

PRACTICAL TRAINING DURING THE FOURTH TERM FOR THE FIRST THREE YEARS

YEAR	BSC AGRIC	B. FOOD SCI & TECH	BSC FOR	BSC ENG
ONE	FIELD TRAINING AT MUARIK	FEILD TRANING AT MUARIK PLUS INDUSTRIAL TOURS	TOUR OF FORESTS, ATTACHMENT TO DISTRICT FOREST OFFICERS	VOCATIONAL TRAINING IN FACULTY OF TECHNOLOGY AT MAKERERE
TWO	COMPUTER APPLICATIONS, FARM ACCOUNTS, TOUR THROUGH UGANDA	INDUSTRIAL ATTACHMENT	FIELD TRAINING IN FOREST BIOLOGY, FOREST MENSURATION, FOREST ENGINEERING, SAW MILLING & WILDLIFE ECOLOGY	INDUSTRIAL TRAINING
THREE	PRACTICAL ATTACHMENT FOR SPECIAL PROJECT	PRACTICAL ATTACHMENT FOR SPECIAL PROJECT	PRACTICAL ATTACHMENT FOR SPECIAL PROJECT	"HANDS-ON" EXPERIENCE UNDER MAKERERE SUPERVISION

Source: Faculty Handbook

Training

External Degree Training Summary

	Name	Inst	Deg	Field of Study	Univ.	Departed	Returned	Comments/ Present Assignment
1	Ijoyi Fendru	MU	PhD	Rur Soc.	OSU	Dec-88	*	** ETR 12/93
2	L.Wabwire	MU	PhD	Ag Econ	Mo.	Aug-90	Mar-93	deceased
3	V. Kasenge	MU	PhD	Ag Econ	MU	Sep-90	Sep-91	Makerere PhD; coursework at OSU
4	J. Kibalama	MU	PhD	Ag. Eng	OSU	Dec-88	Jun-93	** teaching & research in Ag Engin Dept
5	M. Tenywa	MU	PhD	Soil Con	OSU	Sep-90	*	** ETR 12/93
6	J. S.Tenywa	MU	PhD	Soil Sci.	OSU	Sep-89	Apr-93	** teaching & research in Soil Sci. Dept
7	Mary Silver	MU	PhD	Soil Mic.	Fla	Aug-89	* ?	ETR 12/93
8	A. Ekwamu	MU	PhD	Pla.Path	OSU	Sep-88	Mar-92	** teaching & research in Crop Sci. Dept
9	R. Ssonko	MU	PhD	Hortic.	Fla	Sep-89	Jun-93	teaching & research in Crop Sci. Dept
10	Ssekabembe	MU	PhD	Crop Sc.	OSU	Aug-88	Dec-92	teaching & research in Crop Sci. Dept
11	D.Mutetika	MU	PhD	An. Sci.	OSU	Sep-89	Apr-93	teaching & research in Animal Sci. Dept
1	B. Matsiko	MU	MSc	Ed/Ext	Minn	Sep-88	Jun-90	** teaching & research in AgEd/Ext Dept
2	M. N.-Kasujja	MU	MSc	Ed/Ext	OSU	Sep-88	Apr-90	** pursuing PhD Minnesota/Rockefeller
3	J. Tibezinda	MU	MSc	Ed/Ext	Wisc	Sep-89	Jun-91	on PhD at OSU-World Bank/ARTP
4	G Ruhara	MU	MSc	Ed/Ext	WVa.	Aug-89	May-91	** transferred to MAAIF Extension
5	B. Kiiza	MU	MSc	Ag Econ	Minn	Sep-90	Apr-92	teaching & research in Ag Econ. Dept
6	G. Bahiigwa	MU	MSc	Ag Econ	Minn	Sep-90	Apr-92	teaching & research in Ag Econ. Dept
7	Sserunkuma	MU	MSc	Ag Econ	Minn	Sep-90	Apr-92	teaching & research in Ag Econ. Dept
1	B. Odongo	MA	PhD	Crop Sci	Purd	Sep-90	*	ETR 12/93
2	J. Imanywoha	MA	PhD	Crop Sci	Ut St.	Dec-89	Apr-93	rice/sunflower research at Namulonge
3	J.J. Hakiza	MA	PhD	Plant Br.	OSU	Jun-89	*	** ETR 12/93- Nat. Maize Prog.-Namul.
4	L. Serunjoji	MA	PhD	Plant Br.	OSU	Sep-89	Jun-93	Nat. Maize Research Program-Namul.
5	C.Butegwa	MA	PhD	Soil Sci.	Aub	Sep-90	*	ETR 12/93
6	D. Kyetere	MA	PhD	Crop Sci	OSU	Sep-90	*	ETR 12/93- Nat. Maize Prog.-Namul.
7	M. Magunda	MA	PhD	Soil Sci.	Minn	Sep-88	Jul-92	** soil physics research at Kawanda
8	P. Esele	MA	PhD	Pl.Path.	TAMU	Aug-88	Dec-91	** sorghum research; sta. director/Serere
9	G.Mukulu	MA	PhD	Entomol	OSU	Sep-89	Jun-93	either Namulonge or Kawanda
10	P. Padde	MA	PhD	Ag. /Ext	Aub	Sep-90	Jun-93	** National Extension Program/Entebbe
1	Drake Mubiru	MA	MSc	Soil Sci.	Ky	Sep-90	Dec-92	soil fertility research at Kawanda
2	P.K.-Jjemba	MA	MSc	Soil Sci.	Minn	Sep-88	Apr-91	soil micro/Kawanda; PhD under ARTP
3	O. Semalulu	MA	MSc	Soil Sci.	Ky	Jan-90	Jul-92	soil mgt research at Kawanda
4	G.Lukwago	MA	MSc	Ag Econ	Fla	Dec-89	May-92	FSSP in Mukono
5	Peter Mijumbi	MA	MSc	Ag Econ	Fla	Jan-89	May-91	On PhD at Florida; private fellowship
6	Mary Mugisa	MA	MSc	Ag Econ	OSU	Sep-89	Sep-91	Nati. Bean Research Program Kawanda
7	G.Opio	MA	MSc	Ag. Eng.	Minn	Sep-88	Aug-90	animal traction research at Soroti
8	Y. Obong	MA	MSc	Crop Sci	WVa.	Aug-89	Jul-91	groundnut research at Namulonge
9	J. Ssembatya	MA	MSc	Ag. /Ext	OSU	Aug-88	Apr-89	deceased
10	A. E.-Okiria	MA	MSc	Ag. /Ext	OSU	Sep-88	Dec-89	Principal of Arapai Agric. Tech. College

** will finish after PACD* *** Conducted research in Uganda*

List of external degree dissertations/theses

	Name	Degree	Thesis title
1	David Mutettika	Ph.D.	Some tropical forage leaf meals and their value in pig feeding.
2	Joseph Kibalama	Ph.D.	Improvement of traction and maneuverability of a mono wheel drive tractor for a developing country.
3	Valentine Kasenge	Ph.D.	Farm management information needs, availability and applicability for decision making in Ugandan practice.
4	Charles Ssekabembe	Ph.D.	Cutting or pruning management to reduce hedgerow root competition from leuceana alley cropped with maize.
5	Adipala Ekwamu	Ph.D.	Variation in field populations, disease development and yield losses associated with exserohilum turcicum in Uganda.
6	Mary Silver	Ph.D.	Trehalose: a possible determinant of competitiveness in rhizobium phaseoli.
7	Robinah Ssonko	Ph.D.	Calcium nutrition and bacterial wilt management in tomatoes.
8	John Stephen Tenywa	Ph.D.	Crop residue influence on exchangeable aluminum, potassium availability and seedling root growth in an oxisol.
9	Ijoyi Fendru	Ph.D.	Socioeconomic constraints to access to agricultural credit: a comparative study of women and men farmers in Uganda.
10	Moses Tenywa	Ph.D	Spatial and temporal variability in soil properties, runoff and erosion.
11	Dick Sserunkuma	M.Sc.	The role of roads, credit and political stability in agricultural development: a case of soybeans in Uganda.
12	Godfrey Bahiigwa B.	M.Sc.	The declining production trends for cotton in Uganda: a regional analysis and policy implication.
13	Biryabaho Matsiko F.	M.Sc.	Effectiveness of third party interviewers in identifying farmers needs for the purposes of extension program planning in Uganda.
14	Barnabas Kiiza	M.Sc.	The impact of the structual adjustment in Uganda: the case of agricultural supply response.
15	George Ruhara-Tweheyo	M.Sc.	Perceptions of extension supervisors and development committe chairmen regarding recent makerere agricultural graduates as extension agents in Uganda.
16	Jovan Tibenzinda	M.Sc.	The actors in Third World agricultural research- the Uganda case.
17	Margaret N. Kasujja	M.Sc.	An asessment of the technical and professional competency neeeded by extension personnel in the central region of Uganda.
18	Paul Padde	Ph.D.	An evaluation of the supervisory techniques of the extension supervisors as they relate to the job performance among the extension agents in the agricultural extension service in the eastern region of Uganda.

	Name	Degree	Thesis title
19	Gloria Mukulu	Ph.D.	Evaluation of various control methods for the banana weevil, cosmopolites sordidus : implications for integrated control of the pest in Uganda.
20	Christopher Butegwa	Ph.D.	Laboratory and greenhouse studies to evaluate Uganda rock phosphate for direct application.
21	John J. Hakiza	Ph.D.	Variations in expression of exserohilum turcicum (pass) leonard & suggs symptoms due to the monogenic and polygenic resistance in corn (zea mays l)
22	Lastus Serunjogi	Ph.D.	Heritability, genotypic and phenotypic correlation studies for seed yield, protein and oil percent in populations of soybean with and without rhizobium inoculation.
23	Peter Esele	Ph.D.	The genetics of grain mold resistance in sorghum (sorghum bicolor l. Moench)
24	Matthias Magunda	Ph.D.	Influence of soil mineralogy and organic matter on soil strength and soil detachment.
25	Denis Kyetere	Ph.D.	Determination of the genetic basic of resistance to maize streak virus disease using molecular markers.
26	Benson Odongo	Ph.D.	Models relating the impact of a phytoseiid predatory mite, euseius fustis (acari: phytoseiidae) and environmental factors on cassava mite.
27	Justus Imanywoha	Ph.D.	Production and Indentification of Primary Trisomics in Diploid Agropyra Cristatum (L) Geartn.
28	Kayondo-Jjemba P.	M.Sc.	Effecient Nitrogen Fixation, P utilization and low P tolerance in common bean cultivars.
29	Drake Mubiru	M.Sc.	Mineralogical and P-sorption characteristics of some highly weathered soils in south central Kentucky.
30	Yuventino Obong	M.Sc.	Dynamics of growth of Red clover (Trifolium Pratense l.) And Kentucky Bluegrass (Poa Pratensis l.) In a native pasture.
31	Peter Mijumbi	M.Sc.	Economic analysis of maize production in two districts in Uganda.
32	George Lukwago	M.Sc.	Changes in the farming systems and farmers' decisions in Masaka District in Uganda.
33	Onesimus Semalulu	M.Sc.	Phosphorus and potassium calibration for postmine soils of western Kentucky.
34	Gaudesius Opio	M.Sc.	Design, manufacture and testing of agricultural implements/ machinery suited for use in developing countries.
35	Mary Mugisa	M.Sc.	Estimation of on farm enterprise costs of production and its policy implications with particular reference to Ohio.
36	Amos Edukut-Okiria	M.Sc.	Working under adversity: job satisfaction of agricultural teachers in Uganda.
37	George Ruhara	M.Sc.	Perceptions of regional and district agricultural officers, development committee chairmen and ext. agents regarding recent MU/FAF graduates as ext. agents in Uganda.

In-country MSc Students Sponsored by USAID/MFAD (1991 intake)

	Name	Institution	Field of Study	Supervisor(s)	Start	Finish
1	Akoyi Kevin	MAAIF	Agr Economics	Vanegas, Grisley	Jul-91	Apr-93
2	Kasenge V.*	MU/FAF	Agr Economics	Forster(OSU)	Jul-91	Apr-93
3	Khauka R.L.	MAAIF	Agr Economics	Shetty, Grisley	Jul-91	Apr-93
4	Kiwanuka V.	MAAIF	Agr Economics	Ngambeki	Jul-91	Apr-93
5	Mwanje E.	MU/FAF	Agr Economics	P. Ngategize, Denton	Jul-91	Apr-93
6	Nalwoga J.	MAAIF	Agr Economics	P. Ngategize	Jul-91	Apr-93
7	Nannyonga H.	MU/FAF	Agr Economics	Vanegas, Hyuha	Jul-91	Apr-93
8	Okiror M.M.	MAAIF	Agr Economics	Shetty, Vanegas	Jul-91	Apr-93
9	Ongom B.S.	MAAIF	Agr Economics	Ngambeki, Ddungu	Jul-91	Apr-93
10	Otim Samuel	MAAIF	Agr Economics	P. Ngategize	Jul-91	Apr-93
11	Sebunya G.	MAAIF	Agr Economics	Vanegas, Grisley	Jul-91	Apr-93
12	Senteza J.	MU/FAF	Agr Economics	Vanegas, Ngambeki	Jul-91	Apr-93
13	Tayebwa B.	MU/FAF	Agr Economics	Vanegas	Jul-91	Apr-93
14	Batte G.	MU/FAF	Agr Engineer.	Arnold, Rugumayo	Jul-91	Jun-93
15	Osinde P.	MU/FAF	Agr Engineer.	Arnold, Magunda	Jul-91	Jun-93
16	Kawongolo J.	MU/FAF	Agr Engineer.	Rugumayo	Jul-91	Dec-93
17	C.D. Waiswa	MU/FAF	Animal Science	Bareeba	Jul-91	Jun-93
18	Anyanga W.O.	MAAIF	Crop Sci/Brding	P. Rubahaiyo	Jul-91	Jun-93
19	Baguma Yona	MAAIF	Crop Sci/Agron	Osiru	Jul-91	Jun-93
20	Iceduna C.L.	MAAIF	Crop Sci/Entom	A. Ekwamu	Jul-91	Jun-93
21	Kalule Twaha	MAAIF	Crop Sci/Entom	Latigo, Okoth V.A.	Jul-91	Jun-93
22	Sekamatte B.	MAAIF	Crop Sci/Entom	Latigo, Okoth V.A.	Jul-91	Jun-93
23	Kanzikwera R.	MAAIF	Crop Sci/Agron	Osiru	Jul-91	Jun-93
24	Opio-Otim S.	MAAIF	Crop Sci/Path	Osiru, A. Ekwamu	Jul-91	Jun-93
25	Elobu Pius	MAAIF	Crop Sci/Path	Osiru, Zake	Jul-91	Jun-93
26	Takan O.J.P.	MAAIF	Crop Sci/Path	A. Ekwamu, Latigo	Jul-91	Jun-93
27	Mpairwe D.	MAAIF	Crop Sci/Past	Sabiiti, Mugerwa	Jul-91	Jun-93
28	Lusembo P.	MAAIF	Crop Science	Sabiiti, Mugerwa	Jul-91	Jun-93
29	Night G.	MU/FAF	Crop Science	Latigo	Jul-91	Jun-93
30	Ouma E.	MAAIF	Crop Science	Latigo, Okoth V.A.	Jul-91	Jun-93
31	Oonyo J.	MU/FAF	Crop Science	Latigo	Jul-91	Jun-93
32	Nyambiro-M.	MAAIF	Crop Sci/Entom		Jul-91	Jun-93
33	Muramira T.	MU/FAF	Agroforestry	Aluma, Marquart	Jul-91	Jun-93
34	Atukunda A.	MU/FAF	Agroforestry	Aluma, Sabiiti	Jul-91	Jun-93
35	Lubowa D.	MAAIF	Soil Science	Zake, Osiru	Jul-91	Jun-93

* PhD Candidate

Incountry MSc Thesis titles

	Name	Thesis Title
1.	Akoyi Kevin	Production Responsiveness of Cotton in Uganda.
2.	Khauka R.	An Econ. Analy. of Demand and Supply of Agric. Inputs at the Farm Level.
3.	Mwanje E.	Supply Response and Technology Adoption of Uganda Maize Farmers: Econometric Analysis and Policy Considerations.
4.	Nalwoga J.	Soybean Acreage Response: A National Econometric Fruit and Vegetable Marketing in the Economic Development of Uganda.
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6.	Otim S.	The Uganda Coffee Industry, The Impact of Sub-sector and Micro Economic Policies on Coffee supply, Returns and Exports.
7.	Okiror M. M.	Tobacco Supply Response for Arua Farmers.
8.	Ongom S. B.	Food Crop Production in Ugandan Agric. Policy.
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10.	Sebunya G.	The Income and Price elasticities of Home Consumption and Marketed Surplus of Beans: A Case Study of Masaka.
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12.	Tayebwa B.	An Economic Analysis of The Production of Maize in Uganda: A Case Study for Masindi District.
13.	Mpairwe D.	Evaluation of Gliricidia Sepium as a Fodder Tree for Ruminant Prod.
14.	Nyambiro Mugume	Effects of Spacing and Fertilizer (Organ. and Inorg.) on Mulbery Prodn.
15.	Opio-Otim S.	Investigation on Growth and Production of Grafted Vs Non-Grafted Passion Fruits Raised on Tree Lises.
16.	Atukunda A.	Silvipastoral Practices with specific Reference to Government sponsored Singo Ranching Scheme.
17.	Muramira T. E.	The Effects of Hand Tenure Systems on Land use and Natural Resource Conservation in Mpigi and Masindi Districts.
18.	Anyanga Walter O.	Genetic Studies of some Characters Correlated to Yield, their Inter-relationship and Heritability Estimates in Sesame (Sesamum inducum L.)
19.	Lusembo Peter	Agronomic Studies for Forage Legume Seed Production.
20.	Kawongolo J. B.	Dev' of Decorticator for Small/Medium Scale Fibre Crop Processing.
21.	Kanzikwera R. K.	The Effect of Seed Size and Plant Population on Marketing Yield of Potatoes (Solanum tuberosum L.) at High and Low Elevations in Uganda.
22.	Batte George	Development of a Gasifier Unit for use in Drying Agricultural Products.
23.	Baguma K. Yona	Dry Matter Production and Partitioning in Cassava (Manihoti esculenta crantz) Intercropped with Maize (Zea mays)
24.	Elobu Pius	Performance of Selected Potato (Solanum tuberosum) Genotypes in Relation to Plant Population and Nitrogen Levels in the Lowland Tropics.
25.	Takan John P.	Host Resistance, and The Effect of Plant Population and Residue Level on The Epidemiology of Northern Leaf Blight of Maize in Uganda.
26.	Ssekamate B. M.	Studies on the Pest Status and Control of the Cotton aphid, Aphis gossipii glover (Aphididae, Hem) in Ugandan.
27.	Iceduna C. L.	Selection for Resistance and Fungicidal Control of Scab of Cowpea (Sphaceloma sp.) in Uganda.
28.	Twaha M. Kalule	Investigations on the Pest status and control of Graminaecious stem borers of Maize in Uganda.
29.	Night Gertrude	Evaluation of Pest Status and The Resistance of Some Pigeonpea Cultivars to Major Pests in Uganda.
30.	Osinde Peter	Interill Erodibility of selected Uganda Soils based on the WEPP Model.
31.	Waiswa D.	Developing Low cost Rations For Feeding Growing Rabbits.
32.	Ouma Eric.	Pest Status and Resistance to Short-flies (Atherigona sp.) on Finger Millet (Eleusine coracana) in Uganda.
33.	Mbalule Moses	The Effect of Soyabean Population Density on Soil Nutrient Depletion (N P and K) and Sustainable Soil Productivity.
34.	Kasenge Valentine	Econ. Analy. and Spatial Organ. of Gain Seed Supply System in Uganda.

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MAKERERE UNIVERSITY

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Eriabu Sendiwanyo	1993	Soil Survey of Kalengyere Research Station, kabale District
Eriabu Sendiwanyo	1993	Soil Survey of Promotion of Grain Legume Project Farm Mubuku, Kasese, Uganda
Patrick Jjemba and Peter H. Grahan		Efficient N Fixation, P Utilization and LOw P Tolerance in Phaseolus vulgaris, L Cultivars
M. S. Musaana, A. F. Opio, Dr. I. K. Kibirige Sebunya		Application of interorgnaism genetics to mutation breeding for disease resistance: The Role of Breeders Pathologists and Physiologists.
A. F. Opio and S. M. Musaana		The National beans program operaios as influenced by the Agricultural policy.
M. S. Musaana and F. Opio	1991	Optimum bean production in uganda with Reference to soil, climatological requirements and most suitable varieties for market needs. Seminar on Export of Dried Beans July 3 1991.
T. Sengooba and B. S. Male-Kayiwa	1990	Progress in Studies of Phoma Blight of Common Bean in Eastern Africa. Workshop on bean research in E. Africa, Nairobi 1990.
T. Sengooba	1990	Comparison of Disease Development in Beans in Pure Stand and Maize Intercrop Annual Report of the Bean Improvement Cooperative 1990.
J. Kisakye and M. Ugen-Adrogu		Bean Yield loss assessemnt Trials in Uganda. Workshop on bean research in East Africa.
C. S. Wortmann and M. Ugen-Adrogu	1990	The development of a Maize climbing bean intercropping system for Central Uganda. Workshop on bean research in East Africa Nairobi 1990
J. Kisakye and M. Ugen-Adrogu	1990	On-farm bean cultivar Evaluation trials in Uganda. Workshop on bean research in East Africa, Nairobi 1990.
S. M. Musaana and A. F. Opio		Regional Collaborative Research Project on common bacterial blight, *Xanthomonas campetris* pv. *phaseoli* Smith) Dye, of Common Bean (*Phaseolus vulgaris* L.)
B. S. Male-Kayiwa and M. S. Musaana	1990	Yield stability of common bean in uganda. Workshop on bean research in E. Africa Nairobi 1990.
M. N. Silim	1990	Districbution Patterns of the Bean Bruchids *Zabrotes subfasciatus* Boheman and *Acanthoscelides obtectus* (Say) (Bruchidae: Coleoptera) in Uganda. Workshop on bean reseach in East Africa Nairobi 1990.
E. Kikoba	1990	Exploratory Survey of the effects of bean cropping systems on weed composition and predominant weed species. Workhop on bean research in East Africa Nairobi 1990.
S. A. P. Owera	1990	Analysis of Serotypes and strains of bean common mosaic virus (BCMV) in countries within CIAT's regional programme on beans in Eastern Africa. Workshop on Beans research in east Africa Nairobi 1990.
Imanyoha J. B.		Cytological analysis of progenies os autrotriploid (2n = 21) and hypertriploid (2n = 22) and comparison of these progenies. (Paper in preparation)
Imanyoha J. B.		Meiotic Behavior of the autrotriploid and hypertriploid Agropyron Cristattum (L) Geartin (Paper in preparation).
Mwanga R. O. M., Zamora, O. B.	1989	Physiological response of sweet potato (1 pomoea batatsas (L) Lam) to varying levels of shade. In M. N. Alvarez and S. K. Hahn (Eds). Root Crops in low input Agriculature. Proc. 3rd Eastern and Southern Africa Regional Workshop on Root and Tuber Crops, 7th 11th Dec. 1987 p. 188 - 212.
Mwanga R. O. M., Zamora O. B.	1990	Path analysis and correlation studies in sweet potato grown under coconut palms. In Proc. 8th symp. Int. Soc. Trop. Root crops R. H. Howeler (ed). Bangkok, Thailand, 1988 p. 530 (Abstract).
Ocitti p' Obwoya, C. N., Emokol W. E. .	1989	Optimum number of view cuttings for optimum tuber yield in Sweet Potato (1 pomea batatas). In: M. N. Alvares and S. K. Hahn (Eds). Root Crops in Low input Agriculture. Proc. 3rd Eastern and Southern African Regional Workshop on Root and tuber crops 7th - 11th Dec. 1987. p. 213 - 218.
Ocitti p'Obwoya, C.		The effect of seed bed preparation on tuber yield and quality of sweet potato and the economic implications.
Mwanga R. O. M., Ocitti p'Obwoya, C. Otim-Nape, W. Odongo		Sweet Potato Improvement in Uganda.
Mwanga R. O. M., Zamora O. B.	1990	Biochemical responses of sweet potato (1 pomea batatas) (L. Lam) to varying levels of shade. Paper presented at the National Scientific conference in Agriculture 10th - 14th Dec. 1990.
Ocitti p;Obwoya		Factors limiting Sweet Potato Production and Utilization in Uganda
Bashaasha, B., Mwanga R. O.	1990	Sweet Potato: A source of income for low-income rural families in Uganda. Paper presented at the first National Scientific Conference in Agriculture 10th - 14th Dec. 1990
Tukamuhabwa P.	1993	How to grow Soybean in uganda.
Tukamuhabwa P. Ebong C.	1992	Soybean production and utilization in Uganda. Paper presented at the first workshop on soybean production and utilization held at Mukono District Farm Institute on 2nd - 6th March 1992.
	1990	Soybean Research 1990 in Namulonge Research Station Annual Report p. 7 - 24
	1991	Soybean Research 1991 in the Namulonge Research Station Annual Report p. 156 - 165
	1990	Groundnut research 1990 in Namulonge Research Annual Report p. 25 - 28
	1991	Groundnut Research 1991 in Namulonge Research Station Annual Report p. 93- 102
	1990	Sunflower Research 1990 in namulonge Research Station Annual Report p. 79 - 102
	1991	Sunflower Research 1991 in Namulonge Research Station Annual Report p. 166 - 193

Semalulu, O, and R. I. Barnhisel	1991	The response of prime farmland corn to P and K fertilization, Agronomy abstracts. ASA, CSSA, SSSA, Paper presented at the 1991 American Society of Agronomy meetings, Denver, Colorado. U.S.A.
Semalulu, O. and R. I. Barnhisel	1992	Phosphorus availability as affect by top soil and sub soil properties. Paper presented at the 1992. National Symposium on Prime farm land reclamation, St. Louis, Missouri, U. S. A.
Semalulu O, and R. I. Barnhisel	1992	Corn response and associated soul test changes following P and K fertilization of Prime farmland. poster paper presented at the 1992 National meetings of the American Society for surface mining and reclamation, Ouluth, Minnesota. June 14th - 18th.
Moses Mbalule Idembe		The use of Basagran and focus to control weeds in Soybean.
A.F. Apio		"Pests of Soyabeans
Imelda Lwanga		Soybean processing at household level/recipes.
Helen Eyedu		Utilizing Soybean at household level/Soybean recipes.
Daniel Nsubuga - Kikoyo		Soybean marketing

APPENDIX D6

Priority Research Areas, Programs and Activities

Areas/Programs	Commodities/Subject Matter	Activities
	HIGH PRIORITY	
Food Crops:		
Banana & Plantain	Bananas and banana-based farming systems	Varietal selection, soil and crop management, disease and pest control
Cereals	Millet, maize	Varietal selection, crop management, disease and pest control
Roots & Tubers	Cassava, Sweet Potato	Varietal selection, soil and crop management, disease and pest control
Grain Legumes	Beans	Varietal selection, crop management, disease and pest control
Oil Crops	Groundnut	Varietal selection, crop management, disease and pest control
Horticulture *	Selected Vegetables	Survey, varietal screening, crop management, disease and pest control
Cash Crops:		
Coffee	Coffee and coffee-based farming systems	Clonal selection, soil and crop management, disease and pest control
Cotton	Cotton improvement	Varietal selection, crop management, disease and pest control
Livestock:		
Large Ruminants	Dairy cattle, beef cattle	Animal health, animal nutrition, animal production and management

...continued

* Selected vegetables are included on national local recommendation and not derived following the weighted criteria method, due to non-availability of data.

Areas/Programs	Commodities/Subject Matter	Activities
HIGH PRIORITY		
Fisheries:		
Lake Fisheries (Lakes Victoria and Kyoga)	Fish production systems	Biology, aquatic ecology, fishing technology
Forestry:		
Natural Forests	Forest production and protection systems	Management, conservation, timber and fuelwood production and protection
Systems/Factors:		
Soil Management	Soil productivity improvement	Soil fertility, soil management
Integrated Pest Management (IPM)	IPM (high-priority crops and animal pests of major importance)	Development of IPM strategies, system analysis and improvement
MEDIUM PRIORITY		
Food Crops:		
Cereals	Sorghum, Rice	Collection, maintenance and variety testing
Roots & Tubers	Irish Potato	Introduction and testing of varieties
Oil Crops	Sesame	Screening, testing of local and introduced varieties
Horticulture	Selected Fruits	Survey, variety testing, crop management, disease and pest control
Livestock:		
Small Ruminants	Goats, sheep	Health, nutrition, production and management
Poultry	Chickens, ducks	Health, nutrition, production and management

...continued

Areas/Programs	Commodities/Subject Matter	Activities
MEDIUM PRIORITY		
Fisheries:		
Aquaculture	Pond fish farming	Fingerling production, feeding and management
Forestry:		
Plantation Forests	Forest production and protection systems	Management, conservation, timber and fuelwood production and protection
Systems/Factors:		
Soil Management	Soil survey and characterization	Soil mapping, soil classification
Post-Harvest Systems	Postharvest operations	Crops: harvesting, drying, processing and storage Forestry: wood processing, preservation and utilization Animals: milk and milk products, fish processing
Water Management	Water conservation and management	Moisture conservation, rainwater harvesting and management; Cropping systems for efficient moisture utilization
Farm Mechanization	Small farm implements and tools	Tillage, harvesting, drying, processing equipment and storage structures, farm power (animal traction)
Agro-Forestry	Agro-Forestry System	Species selection, intercropping, alley cropping
LOW PRIORITY		
Food Crops:		
Cereals	Wheat, Barley	Maintenance, exchange of information and materials
Roots and Tubers	Yams	Maintenance, exchange of information and materials

...continued

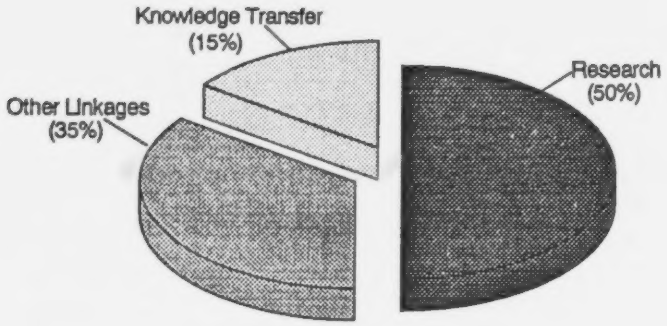
Areas/Programs	Commodities/Subject Matter	Activities
	LOW PRIORITY	
Food Legumes	Cow Peas, Pigeon Peas, Field Peas	Maintenance, exchange of information and materials
Oil Crops	Soybean, Sunflower	Maintenance, exchange of information and materials
Cash Crops:		
Minor Cash Crops	Tea, Sugarcane, Tobacco, Cocoa, Oil Palm	Maintenance, exchange of information and materials
Livestock:		
Pigs	Pig improvement	Collection and documentation of information
Fisheries:		
Aquaculture	Fish farming (swamps, dams, valley tanks, rivers)	Collection and documentation of information

Proposed Allocation of Research Staff

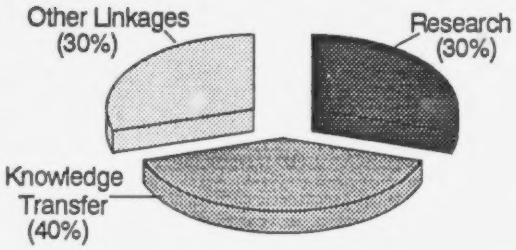
Priority	Research Area / Number of Researchers										
	Crops		Livestock		Fisheries		Forestry		Factors/ Prod.Syst.		TOTAL
	Proj.	Staff	Proj.	Staff	Proj.	Staff	Proj.	Staff	Proj.	Staff	
High	8	56	2	25	1	10	1	10	2	9	110
Medium	4	16	2	5	1	3	1	7	5	11	42
Total	12	72	4	30	2	13	2	17	7	20	152

. Priority Ranking and Resource Allocation

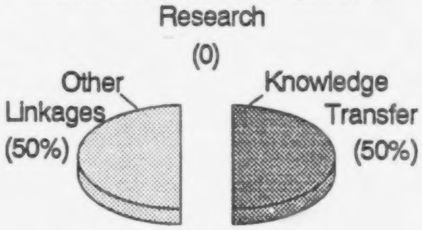
HIGH-PRIORITY PROGRAMS



MEDIUM-PRIORITY PROGRAMS



LOW-PRIORITY PROGRAMS



APPENDIX E 1

FACULTY OF AGRICULTURE & FORESTRY

ACADEMIC PROGRAM FOR FIRST YEAR STUDENTS

COURSES	AGRI	AGRI ENG	FO/S	FOR
AE 101 TECHNICAL DRAWING	0.5	-	0.5	0.5
AE 102 MATHEMATICS	1	-	1	1
AE 103 CLIMATOLOGY	0.5	-	0.5	0.5
AE 104 ENGINEERING MATHS	-	3	-	-
AE 105 ELECTRICAL ENGINEERING	-	3	-	-
AE 106 THERMODYNAMICS 1	-	3	-	-
AE 107 ENGINEERING DRAWING	-	3	-	-
AE 108 MECHANICS	-	3	-	-
AE 109 FLUID MECHANICS	-	1.5	-	-
AE 110 STRENGTH OF MATERIALS	-	1.5	-	-
AE 11 LABS AND WORHSHOP	-	0	0	0
AE 112 VOCATIONAL TRAINING	-	3	-	-
AS 101 ZOOLOGY	0.5	-	0.5	0.5
AS 102 ANIMAL PHYSIOLOGY	1	-	1	-
AS 103 CYTOMOLECULAR BIOLOGY	0.5	-	0.5	0.5
CS 101 AGRIC BOTANY	1	-	1	1
CS 102 MYCOLOGY	0.5	-	0.5	0.5
CS 103 ENTOMOLOGY	0.5	-	0.5	0.5
CS 104 INTRO BACTERIOLOGY & VIROLOGY	0.5	–	-	0.5
CS 105 INTRO GENETICS	0.5	-	0.5	0.5
CS 106 PLANT PHYSIOLOGY	0.5	-	0.5	0.5
CS 107 INTRO AGRONOMY	1	-	1	-
CS 108 ECOLOGY	0.5	-	0.5	0.5
FO 101 FOREST BIOLOGY	-	-	-	1
FO 102 WOOD ANATOMY	-	-	-	1
FS 101 INTRO FOOD SCIENCE	0.5	-	0.5	0.5
FS 102 FOOD NUTRITION STRATEGY	-	-	0.5	-
FS 103 PRINC. HUMAN NUTRITION	-	-	1	-
FS 104 BIOCHEMISTRY 1	1	-	1	1
FS 105 BIOCHEMISTRY 11	1	-	1	1
FS 106 FOOD CHEMISTRY	-	-	1	-
RE 101 INTRO. ECONOMICS	1	-	1	1
RE 102 INTRO. STATISTICS	1	-	1	1
SS 101 GENERAL MICROBIOLOGY	0.5	-	0.5	0.5
SS 102 INTRO. SOIL SCIENCE	1	-	-	1
SS 103 GEOL & GEOMORPHOLOGY	1	-	-	1
TOTAL	16	21	16	16

AE COURSES TAKEN IN THE FACULTY OF TECHNOLOGY.

APPENDIX E 2

ACEDEMIC PROGRAM FOR SECOND YEAR STUDENTS

COURSES	AGRI	AGR ENG	FO SCI	FOR
AE 201 BASIC MECHANICS	0.5	-	0.5	0.5
AE 202 FARM POWER AND MACHINERY	1	-	-	-
AE 203 FIELD ENGINEERING	1	-	-	1
AE 204 PRINC. OF SURVEYING & PHOTOGRA	1	-	-	1
AE 205 FARM STRUCTURES	1	-	1	1
AE 206 BASIC ELECTRICAL TECHNOLOGY	-	-	0.5	-
AE 207 (M23) FLUID MECHANICS 11	-	3	-	-
AE 208 (MAT20) ENGINEERING MATHS 11	-	3	-	-
AE 209 (C24) SOIL MECHANICS	-	3	-	-
AE 210 (M22) STRENGTH OF MATERIALS 11	-	3	-	-
AE 211 (MAT21) COMPUTERS 1	-	3	-	1
AE 212 (M21) ELECTRICAL ENGINEERING 11	-	3	-	-
AE 213 (M25) THERMODYNAMICS 11	-	3	-	-
AS 201 ANIMAL NUTRITION	1	-	1	-
AS 202 LIVESTOCK MANAGEMENT	1	-	1	-
AS 203 POULTRY MANAGEMENT 1	0.5	-	0.5	-
CS 201 ECONOMIC ENTOMOLOGY	0.5	-	0.5	-
CS 202 WEED SCIENCE	0.5	-	0.5	0.5
CS 203 BIOMETRICS	1	-	1	-
CS 204 ANNUAL CROP AGRONOMY	1	-	1	-
CS 205 CROP SCI. FOR AGRIC. ENGINEERS	-	2	-	-
FO 201 SILVICULTURE 1	-	-	-	1
FO 202 SILVICULTURE 11	-	-	-	1
FO 203 FOREST MENSURATION	-	-	-	1
FO 204 FOREST ROAD CONSTRUCTION	-	-	-	1
FO 205 FOREST ECONOMICS	-	-	-	1
FO 206 SAWMILLING	-	-	-	1
FO 207 FOREST HAND TOOLS AND SAFETY	-	-	-	1
FO 208 TREE IMPROVEMENT	-	-	-	1
FO 209 WOOD PROPERTIES	-	-	-	1
FS 201 FOOD ANALYSIS 1	-	-	1	-
FS 202 FOOD ANALYSIS 11	-	-	1	-
FS 203 WASTE MANAGEMENT	-	-	1	-
FS 204 SYSTEMATIC MICROBIOLOGY	-	-	1	-
FS 205 FOOD PROCESS ENGINEERING	-	-	1	-
FS 206 MEASUREMENT & CONTROL ENG.	-	-	0.5	-
FS 207 REFRIGERATION AND COLD STORAGE	-	-	0.5	-
RE 201 PRODUCTION ECONOMICS	1	-	1	-
RE 202 PRINCIPLES OF FARM MANAGEMENT	1	-	-	-
EE 201 INTRO. AGRICULTURAL EXTENSION	1	-	1	1
EE 202 RURAL SOCIOLOGY	0.5	-	0.5	0.5
SS 201 SOIL PHYSICS 1	0.5	-	-	0.5
SS 202 SOIL FERTILITY 1	1	-	-	0.5
SS 203 SOIL SCI. FOR AGRIC. ENGINEERS	-	1	-	-
CC 201 PRACTICAL SKILLS	1	-	1	1
TOTALS	16	24	17	17

AE COURSES ARE TAKEN IN THE FACULTY OF TECHNOLOGY
10 WEEKS DURING 4TH TERM OF THE FIRST YEAR

FACULTY OF AGRICULTURE AND FORESTRY
ACADEMIC PROGRAM FOR THIRD YEAR STUDENTS

COURSE	AE	AE	EE	AS	CS	FS	FO	SS
AE 301 PRIN. SURV. PHOTO ENG.	-	3	-	-	-	-	-	-
AE 302 SOIL AND WATER ENG.	-	3	-	-	-	-	-	-
AE 303 FARM POWER & MACHINERY	-	3	-	-	-	-	-	-
AE 304 AGR. PROCESS ENGINEERING	-	3	-	-	-	-	-	-
AE 305 FARM STRUCT. & ELECTRI. 1	-	3	-	-	-	-	-	-
AE 306 MACHINE DESIGN	-	3	-	-	-	-	-	-
AE 307 SPECIAL PROJECT	-	4	-	-	-	-	-	-
AS 301 POULTRY MANAGEMENT 11	0.5	-	0.5	0.5	0.5	0.5	-	-
AS 302 ANIMAL HEALTH & DISEASES	1	-	1	1	-	-	-	-
AS 303 PRINCIPLES OF AGRICULTURE	0.5	-	0.5	0.5	0.5	0.5	0.5	0.5
AS 304 ANIMAL FEEDS & FEEDING	1	-	1	1	-	1	-	-
AS 305 DAIRY MANAGEMENT	0.5	-	0.5	0.5	-	-	-	-
AS 306 RANGE MANAGEMENT	-	-	-	0.5	-	-	-	-
AS 307 ANIMAL SCI. FOR AGRIC. ENG.	-	2	-	-	-	-	-	-
CS 301 HORTICULTURE 1	-	-	1	1	1	-	-	1
CS 302 PERENNIAL CROPS	1	-	1	1	1	-	-	1
CS 303 PASTURE AGRONOMY	0.5	-	0.5	0.5	0.5	-	-	0.5
CS 304 PESTICIDE APPLICATIONS	0.5	-	0.5	0.5	0.5	0.5	-	0.5
CS 305 PLANT DISEASES	1	-	1	1	1	-	-	-
CS 306 NEMATOLOGY	-	-	-	-	0.5	-	-	0.5
CS 307 CROP IMPROVEMENT	-	-	-	-	0.5	-	-	-
FO 301 FOREST FIRES	-	-	-	-	-	-	1	-
FO 302 FOREST PATHOLOGY	-	-	-	-	-	-	1	-
FO 303 FOREST ENTOMOLOGY	-	-	-	-	-	-	1	-
FO 304 OPERATIONS RESEARCH	-	-	-	-	-	-	0.5	-
FO 305 LOGGING OPERATIONS	-	-	-	-	-	-	1	-
FO 306 ACCOUNTING & BUDGETING	-	-	-	-	-	-	0.5	-
FO 307 AGROFORESTRY	0.5	-	0.5	0.5	0.5	-	0.5	0.5
FO 308 MANAGEMENT PLANNING	-	-	-	-	-	-	1	-
FO 309 WOOD PRESERVATION	-	-	-	-	-	-	1	1
FO 310 PANEL PRODUCTS	-	-	-	-	-	-	1	-
FO 311 PULP AND PAPER	-	-	-	-	-	-	0.5	-
FO 312 WILDLIFE ECOLOGY	-	-	-	-	-	-	0.5	-
FO 313 MONOR FOREST PRODUCTS	-	-	-	-	-	-	0.5	-

FO 314 COMMUNITY FOREST	-	-	-	-	-	-	1	-
FO 315 RECR. LANDSCAPE FORESTRY	-	-	-	-	-	-	0.5	-
FS 301 CHEM. REACTIVITY OF FOOD	-	-	-	-	-	1	-	-
FS 302 PACKAGING AND MATERIALS	-	-	-	-	-	1	-	-
FS 303 FOOD-BORNE PATHO. & TOXINS	-	-	-	-	-	1	-	-
FS 304 APPLIED FOOD MICROBIOLOGY	-	-	-	-	-	1	-	-
FS 305 FOOD FERMENTATION	-	-	-	-	-	1	-	-
FS 306 PHYSICAL PROPERTIES OF FOOD	-	-	-	-	-	1	-	-
FS 307 POST-HARV, PROCESS & PRESER	1	-	1	1	1	1	-	-
FS 308 HUMAN NUTRITION	-	-	-	-	-	1	-	-
FS 309 QUAL CONTR. & SENSORY EVAL.	-	-	-	-	-	1	-	-
FS 310 PROCESSED FOOD & MARKETING	-	-	-	-	-	1	-	-
FS 311 FOOD PLANT ECONOMICS	-	-	-	-	-	1	-	-
FS 312 FOOD MICRO FOR AGR. ENG.	-	1	-	-	-	-	-	-
RE 301 AGRICULTURAL DEVELOPMENT	1	-	1	1	1	-	-	1
RE 302 AGRICULTURAL MARKETING	1	-	1	1	1	-	-	1
RE 303 RESOURCE MANAGEMENT	0.5	-	0.5	1	1	-	-	1
RE 304 AGRICULTURAL CO-OP & CREDIT	1	-	1	1	1	-	-	1
TOTALS	15	25	15	15	15	15	15	15

APPENDIX E 4

ACADEMIC PROGRAM FOR FOURTH YEAR STUDENTS

AGRICULTURAL ECONOMICS OPTION	
RE 401 AGRICULTURAL POLICY & PLANNING	1
RE 402 AGRICULTURAL ADMINISTRATION	1
RE 403 RURAL DEVELOPMENT	1
RE 404 APPLIED FARM MANAGEMENT	1
RE 405 ECONOMETRICS	1
RE 406 AGRICULTURAL FINANCE	1
RE 407 SOCIAL CHANGE	1
RE 408 SOCIAL RESEARCH METHODS	1
	8
AGRICULTURAL ENGINEERING	
AE 401 APPLIED THERMODYNAMICS	3
AE 402 SYSTEMS ANALYSIS	2
AE 403 BASIC STATISTICS	1
AE 407 FARM MANAGEMENT ECONOMICS &	
EE 418 EXTENSION	
ELECTIVES FROM THE LIST	3
LIST OF ELECTIVES	9
A. AGRICULTURAL MACHINERY OPTION	18
AE 404 ADVANCED AGRICULTURAL MECHANIZATION	
AE 405 FARM MACHINERY DESIGN & ERGONOMICS	3
AE 410 DESIGN PROJECT	3
B. SOIL & WATER OPTION	3
AE 406 SOIL & WATER ENGINEERING	
AE 408 FLUVIAL HYDRAULICS & SEDIMENTOLOGY	3
AE 410 DESIGN PROJECT	3
C. AGRICULTURAL PROCESSING OPTION	3
AE 406 SOIL & WATER ENGINEERING 11	
AE 409 DESIGN OF PROCESSING EQUIPMENT	3
AE 410 DESIGN PROJECT	3
	3
AGRICULTURAL EXTENSION EDUCATION OPTION	
EE 401 PROGRAM PLANNING & EVALUATION 11	1
RE 403 RURAL DEVELOPMENT	0.5
EE 402 AGRICULTURAL JOURNALISM	0.5
EE 403 AGRICULTURAL EXTENSION ADMINISTRATION	1
EE 404 CURRICULUM DEV. & TRAINING METHODS	1
EE 405 EXTENSION METHODS	0.5
EE 406 VISUAL AIDS 11	0.5
EE 407 ADULT EDUCATION	1
EE 408 SOCIOLOGY & PHYCHOLOGY OF EDUCATION	1
EE 409 SOCIAL RESEARCH METHODS	1
ANIMAL SCIENCE OPTION	
AS 401 PRINCIPLES OF ANIMAL BIOTECHNOLOGY	0.5
AS 402 LIVESTOCK BREEDING METHODS	1
AS 403 PIG/RABBIT PRODUCTION	0.5
AS 404 BEEF PRODUCTION SYSTEMS	0.5
AS 405 FORAGE UTILIZATION	0.5
AS 406 APPLIED NUTRITION	1
AS 407 AVIAN PHYSIOLOGY & NUTRITION	1
AS 408 SMALL RUMINANT PRODUCTION	0.5
AS 409 APPLIED APICULTURE	0.5
AS 410 REPRODUCTIVE PHYSIOLOGY	1
AS 411 DAIRY PRODUCTION SYSTEMS	0.5
AS 412 POULTRY BREEDING TECHNIQUES	0.5
	8

CROP SCIENCE OPTION	
CS 401 SEED SCIENCE 7 TECHNOLOGY	0.5
CS 402 ADVANCED PLANT VIROLOGY	0.5
CS 403 ADVANCED BACTERIOLOGY	0.5
CS 404 HORTICULTURE 11	1
CS 405 PEST MANAGEMENT SYSTEMS	0.5
CS 406 ADVANCED PLANT BREEDING	1
CS 407 ADVANCED PLANT PATHOLOGY	0.5
CS 408 FLORICULTURE	0.5
CS 409 POMOLOGY	0.5
CS 410 OLERICULTURE	1
CS 411 ADVANCED CROP PHYSIOLOGY	1
CS 412 ADVANCED WEED SCIENCE	0.5
	8
FOOD SCIENCE AND TECHNOLOGY	
FS 401 FOOD NUTR. IMBAL. & METAB. DISORDER	1
FS 402 FOOD HYGIENE & LEGISLATION	1
FS 403 FOOD ADDITIVES	1
FS 404 FOOD PRODUCT DEVELOPMENT	1
FS 405 ADVANCES IN FOOD SCIENCE & TECHNOLOGY	1
ELECTIVES FROM LIST	3
	8
LIST OF ELECTIVES:	
FS 406 DAIRY TECHNOLOGY	1.5
FS 407 MEAT, POULTRY & FISH TECHNOLOGY	1.5
FS 408 CEREAL, BAKING TECHNOLOGY	1.5
FS 409 FATS & OILS TECHNOLOGY	1.5
FS 410 PLANTATIONS/ESTATES CROP TECHNOLOGY	1.5
FS 411 FRUITS & VEGETABLES TECHNOLOGY	1.5
FS HUMAN NUTRITION & CHILD DEVELOPMENT	3
FORESTRY	
FO 401 FOREST POLICY & LAW	1
FO 402 LEGAL PROSECUTION & PROCEDURES	1
FO 403 FOREST ADMINISTRATION	1
FO 404 RESOURCE MANAGEMENT	1
FO 405 LONG DISTANCE TIMBER TRANSPORT	1
FO 406 BASIC CARPENTRY	1
FO 407 ENVIRONMENTAL PROTECTION	1
FO 408 FOREST WORK SCIENCE	1
	8
SOIL SCIENCE OPTION	
SS 401 SOIL SURVEY AND LAND EVALUATION	1
SS 402 SOIL FERTILITY 11	1
SS 403 SOIL PHYSICS 11	1
SS 404 SOIL CHEMISTRY 11	1
SS 405 SOIL MICROBIOLOGY	1
SS 406 FERTILIZER TECHNOLOGY	1
SS 407 SOIL AND WATER MANAGEMENT	1
SS 408 ADVANCES IN SOIL SCIENCE	1
	8

University of Alberta
Edmonton

Canada T6G 2G5

Centre for International Education and Development
Department of Educational Foundations
Faculty of Education

5-109 Education Building North, Telephone (403) 492-3726
Fax (403) 492-0762

May 6, 1993

TO WHOM IT MAY CONCERN

Dear Sir/Madam:

We are writing to confirm our support for Mr. E. Olupot, Lecturer, School of Education, Makerere University, Uganda, in his application to conduct research on the topic of agricultural education at Makerere University. Mr. Oloput is presently enrolled as a Ph.D. candidate in the field of international education in the Department of Educational Foundations, University of Alberta, Canada. He is also a visiting scholar under the Uganda Institutional & Staff Development Project , which is jointly coordinated by the School of Education, Makerere University, and the Centre for International Education & Development (CIED) , Faculty of Education, University of Alberta.

During his Ph.D. candidacy examination on May 5, 1993, Mr. Olupot was successfully confirmed as a candidate. He is therefore shortly commencing his field trip to Uganda to collect research data for his Ph.D. thesis topic on the role of agricultural education in national development in Uganda. We are strongly convinced that Mr. Olupot's research project will yield useful findings and relevant knowledge for the planning and implementation of Ugandan higher education in the field of agriculture.

We would greatly appreciate therefore if you would kindly approve and facilitate Mr. Olupot's proposed doctoral research project.

Thank you.

Yours sincerely

Dr. W. Samiroden & Dr. S.H.Toh
Professor Associate Professor
Members, Ph.D. Supervisory Committee &
Co-Directors, Uganda Project

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

TELPHONES: 530002

EXECUTIIVE SECRETARY'S DIRECT LINE: 530003

TELEX No. .... TELEFAX No. ....

Plot 76 Buganda Road,
P.O. BOX 6884,
KAMPAPA, UGANDA.

Your Ref: ....

Our Ref: ED/C/2413/Vol. IX

DATE 2nd June, 19 93

The Dean,
Faculty of Agriculture,
Makerere University
P. O. Box 7062,
KAMPALA

Dear Sir,

RE: RESEARCH ON THE EDUCATION OF AGRICULTURALISTS FOR RURAL DEVELOPMENT IN UGANDA

This is to introduce Mr. Emurwon Olupot who would like to carry out research on the education of agriculturalists for rural development in your faculty. This research project is to be carried out in partial fulfilment of the requirements for the award of a Doctor of Philosophy degree of the University of Alberta, Canada to the researcher and has been approved by the Uganda National Council for Science and Technology.

I am requesting you to give the researcher the necessary assistance to enable him accomplish his research. Your cooperation in this regard will be highly appreciated.

Yours sincerely,

David Mwesigwa
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

MAKERERE UNIVERSITY
P.O. Box 7062, Kampala, Uganda
Tel. Gen. 556931/3 Dir. 542277 Telegrams: MAKUNIKA

FACULTY OF AGRICULTURE & FORESTRY
OFFICE OF THE DEAN

Your Ref: ....

Our Ref: ....

Date 23rd June, 1993

To: All Academic Staff, FAF

From: Dr. M.W. Okot
Assocaite Dean

Subject: MR. EMURWON OLUPOT - LECTURER , FACULTY OF EDUCATION

The above named colleague is studying " Agricultural Education and rural development" for a Ph D Degree in the University of A lberta-Canada. He intends to interview as many Staff members and students as possible. In view of his limited time for Research, he would like to start by intreviewing the Academic Staff of this Faculty.

The purpose of this note is to request you kindly to offer him all the assistance he needs to collect his data. Thank you in advance for your cooperation.

c.c. Dean, FAF
Mr. E. Olupot, Faculty of Education MU. ✓

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

TELPHONES: 530002
EXECUTIIVE SECRETARY'S DIRECT LINE 530003
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P.O. BOX 6884,
KAMPAPA, UGANDA.

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Our Ref: ED/C/2413/Vol. IX

DATE 2nd June, 1993

The District Executive Secretary
MPIGI

Dear Sir,

RE: RESEARCH ON THE EDUCATION OF AGRICULTURALISTS FOR RURAL DEVELOPMENT IN UGANDA

This is to introduce Mr. Emurwon Olupot who would like to carry out research on the education of agriculturalists for rural development in your district. This research project is to be carried out in partial fulfilment of the requirements for the award of a Doctor of Philosophy degree of the University of Alberta, Canada to the researcher and has been approved by the Uganda National Council for Science and Technology.

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Yours sincerely,

David Mwesigwa
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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AND TECHNOLOGY

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